

SHARP SERVICE MANUAL



No. S12V452LE640U

LCD COLOR TELEVISION

LC-52LE640U**LC-52C6400U****LC-60LE640U****LC-60C6400U****LC-70LE640U**

MODELS

LC-70C6400U

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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Parts Guide

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SAFETY PRECAUTION

IMPORTANT SERVICE SAFETY PRECAUTION

- Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:

■WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.

CAUTION: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE REPLACE ONLY WITH SAME TYPE FUSE.

F7001 (250V 5A)

■BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

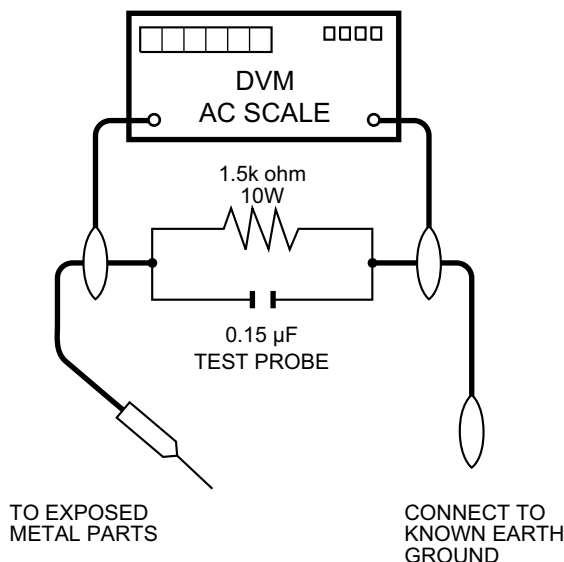
Before returning the receiver to the user, perform the following safety checks:

3. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
 4. Inspect all protective devices such as non-metallic control knobs, insulation materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
 5. To be sure that no shock hazard exists, check for leakage current in the following manner.
- Plug the AC cord directly into a 120 volt AC outlet.

- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 μ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to an earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity or measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC cord plug connection reversed. (If necessary, a nonpolarized adaptor plug must be used only for the purpose of completing these checks.)

Any reading of 0.75 Vrms (this corresponds to 0.5 mA rms AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.



SAFETY NOTICE

Many electrical and mechanical parts in LCD color television have special safety-related characteristics.

These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts List and Schematic Diagrams.

For continued protection, replacement parts must be identical to those used in the original circuit.

The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire or other hazards.

PRECAUTIONS A PRENDRE LORS DE LA REPARATION

■ Ne peut effectuer la réparation qu' un technicien spécialisé qui s'est parfaitement accoutumé à toute vérification de sécurité et aux conseils suivants.

■ AVERTISSEMENT

1. N'entreprendre aucune modification de tout circuit. C'est dangereux.
2. Débrancher le récepteur avant toute réparation.

PRECAUTION: POUR LA PROTECTION CONTINUE CONTRE LES RISQUES D'INCENDIE, REMPLACER LE FUSIBLE

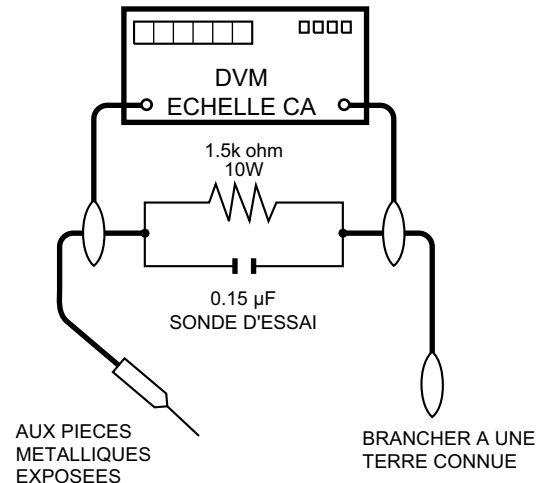
F7001 (250V 5A)

- A l'aide de deux fils à pinces, brancher une résistance de 1.5 k Ω 10 watts en parallèle avec un condensateur de 0.15 μ F en série avec toutes les pièces métalliques exposées du coffret et une terre connue comme une conduite électrique ou une prise de terre branchée à la terre.
- Utiliser un voltmètre CA d'une sensibilité d'au moins 5000 Ω /V pour mesurer la chute de tension en travers de la résistance.
- Toucher avec la sonde d'essai les pièces métalliques exposées qui présentent une voie de retour au châssis (antenne, coffret métallique, tête des vis, arbres de commande et des boutons, écusson, etc.) et mesurer la chute de tension CA en-travers de la résistance. Toutes les vérifications doivent être refaites après avoir inversé la fiche du cordon d'alimentation. (Si nécessaire, une prise d'adpatation non polarisée peut être utilisée dans le but de terminer ces vérifications.)
La tension de pointe mesurée ne doit pas dépasser 0.75V (correspondante au courant CA de pointe de 0.5mA). Dans le cas contraire, il y a une possibilité de choc électrique qui doit être supprimée avant de rendre le récepteur au client.

■ VERIFICATIONS CONTRE L'INCEN-DIE ET LE CHOC ELECTRIQUE

Avant de rendre le récepteur à l'utilisateur, effectuer les vérifications suivantes.

3. Inspecter tous les faisceaux de câbles pour s'assurer que les fils ne soient pas pincés ou qu'un outil ne soit pas placé entre le châssis et les autres pièces métalliques du récepteur.
4. Inspecter tous les dispositifs de protection comme les boutons de commande non-métalliques, les isolants, le dos du coffret, les couvercles ou blindages de réglage et de compartiment, les réseaux de résistancecapacité, les isolateurs mécaniques, etc.
5. S'assurer qu'il n'y ait pas de danger d'électrocution en vérifiant la fuite de courant, de la façon suivante:
 - Brancher le cordon d'alimentation directement à une prise de courant de 120V. (Ne pas utiliser de transformateur d'isolation pour cet essai).



AVIS POUR LA SECURITE

De nombreuses pièces, électriques et mécaniques, dans les téléviseur ACL présentent des caractéristiques spéciales relatives à la sécurité, qui ne sont souvent pas évidentes à vue. Le degré de protection ne peut pas être nécessairement augmentée en utilisant des pièces de remplacement étalonnées pour haute tension, puissance, etc.

Les pièces de remplacement qui présentent ces caractéristiques sont identifiées dans ce manuel; les pièces électriques qui présentent ces particularités sont identifiées par la marque "⚡" et hachurées dans la liste des pièces de remplacement et les diagrammes schématiques.

Pour assurer la protection, ces pièces doivent être identiques à celles utilisées dans le circuit d'origine. L'utilisation de pièces qui n'ont pas les mêmes caractéristiques que les pièces recommandées par l'usine, indiquées dans ce manuel, peut provoquer des électrocutions, incendies, radiations X ou autres accidents.

PRECAUTIONS FOR USING LEAD-FREE SOLDER**■Employing lead-free solder**

- “PWBs” of this model employs lead-free solder. The LF symbol indicates lead-free solder, and is attached on the PWBs and service manuals. The alphabetical character following LF shows the type of lead-free solder.

Example:



Sn-Ag-Cu

Indicates lead-free solder of tin, silver and copper.



Sn-Ag-Cu

Indicates lead-free solder of tin, silver and copper.

■Using lead-free wire solder

- When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40 °C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

■Soldering

- As the melting point of lead-free solder (Sn-Ag-Cu) is about 220 °C which is higher than the conventional lead solder by 40 °C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

Lead-free solder contains more tin, and the end of the soldering bit may be easily corroded. Make sure to turn on and off the power of the bit as required.

If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

- Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing

PARTS CODE	PRICE RANK	PART DELIVERY	DESCRIPTION
ZHNDai123250E	BL	J	φ0.3mm 250g (1roll)
ZHNDai126500E	BK	J	φ0.6mm 500g (1roll)
ZHNDai12801KE	BM	J	φ1.0mm 1kg (1roll)

OUTLINE

MAJOR SERVICE PARTS

■PWB Unit

Ref No.	Parts No.	Description
N	DKEYMF733FM84	MAIN Unit (LC-52LE640U/C6400U)
N	DKEYMF733FM83	MAIN Unit (LC-60LE640U/C6400U)
N	DKEYMF733FM82	MAIN Unit (LC-70LE640U/C6400U)
N	DUNTKG015FM01	R/C, OPC Unit
N	DUNTKG014FM01	ICON Unit
N	DUNTKF800FM53	KEY Unit
N	RUNTKA936WJQZ	Wi-Fi Unit
N	RUNTKA931WJQZ	POWER/DRIVE Unit (LC-52LE640U/C6400U)
N	RUNTKA932WJQZ	POWER/DRIVE Unit (LC-60LE640U/C6400U)
N	RUNTKA933WJQZ	POWER/DRIVE Unit (LC-70LE640U/C6400U)
N	DUNTKF975FM03	LCD CONTROL Unit (LC-52LE640U/C6400U)
N	DUNTKF975FM02	LCD CONTROL Unit (LC-60LE640U/C6400U)
N	DUNTKF975FM01	LCD CONTROL Unit (LC-70LE640U/C6400U)

NOTE: *1 Replace MAIN PWB Units (DKEYMF733FM**) in case of IC8401, IC3303 or IC8455 failure.

*2 Replace LCD CONTROL Units (DUNTKA975FM**) in case of IC5803 failure.

■OTHER Unit

Ref No.	Parts No.	Description
N	R1LK520D3GV00Z	52" LCD Panel Module Unit (LK520D3GV00Z)
N	R1LK600D3GV00Z	60" LCD Panel Module Unit (LK600D3GV00Z)
N	R1LK695D3GW80Z	70" LCD Panel Module Unit (LK695D3GW80Z)

■IC For Exclusive Use Of The Service

Ref No.	Parts No.	Description	Q'ty
IC2001	RH-iXD241WJNSQ	IC R5F21368CNFP (Monitor Microcomputer)	1

■Service Jigs

Ref No.	Parts No.	Description	Q'ty
N	QCNW-C222WJQZ	Connecting Cord L=1000mm 80pins, LCD Control Unit to LCD Panel Unit	2
N	QCNW-M580WJQZ	Connecting Cord L=1000mm 41pins, Main to LCD Control Unit (LW)	1
N	QCNW-L795WJQZ	Connecting Cord L=1000mm 24pins, Main to POWER Unit (PD)	1
N	QCNW-L807WJQZ	Connecting Cord L=1000mm 4pins, Power to LCD Control Unit (PL)	1

CHAPTER 1. SPECIFICATIONS

[1] SPECIFICATIONS

Item			Model: LC-70LE640U/ LC-70C6400U	Model: LC-60LE640U/ LC-60C6400U	Model: LC-52LE640U/ LC-52C6400U
LCD panel	Size		70" Class (69 1/2" Diagonal)	60" Class (60 1/32" Diagonal)	52" Class (52 1/32" Diagonal)
	Resolution		2,073,600 pixels (1,920 x 1,080)		
TV Function	TV-standard (CCIR)		American TV Standard ATSC/NTSC System		
	Receiving Channel	VHF/UHF	VHF 2-13ch, UHF 14-69ch		
		CATV	1-135ch (non-scrambled channel only)		
		Digital Terrestrial Broadcast (8VSB)	2-69ch		
		Digital cable ¹ (64/256 QAM)	1-135ch (non-scrambled channel only)		
Audio multiplex		BTSC System			
Audio out			10 W x 2		
Terminals	Back panel vertical inputs	HDMI 1	HDMI in with HDCP, Audio in (Ø 3.5 mm stereo jack), ARC		
		HDMI 2	HDMI in with HDCP		
		HDMI 3	HDMI in with HDCP		
		HDMI 4	HDMI in with HDCP		
		AUDIO OUT	Audio out (Ø 3.5 mm stereo jack)		
		USB 1	Photo/Music/Video mode, Software update		
	Back panel surface inputs	COMPONENT	COMPONENT in		
		VIDEO 1	AV in		
		VIDEO 2	AV in		
		PC IN	ANALOG RGB (PC) in (15-pin mini D-sub female connector), Audio in (Ø 3.5 mm stereo jack)		
		RS-232C	9-pin D-sub male connector		
	Back panel horizontal inputs	ANT/CABLE	75 Ω Unbalance, F Type x 1 for Analog (VHF/UHF/CATV) and Digital (AIR/CABLE)		
		AUDIO IN	Audio in (Ø 3.5 mm stereo jack)		
		DIGITAL AUDIO OUTPUT	Optical Digital audio output x 1 (PCM/Dolby Digital)		
		ETHERNET	Network connector		
	USB 2		Photo/Music/Video mode, Software update		
OSD language			English/French/Spanish		
Power Requirement			AC 120 V, 60 Hz		
Power Consumption			228 W (0.1 W Standby with AC 120 V)	188 W (0.1 W Standby with AC 120V)	150 W (0.1 W Standby with AC 120 V)
Weight	TV + stand		86.0 lbs./39.0 kg	61.7 lbs./28.0 kg	56.2 lbs./25.5 kg
	TV only		79.4 lbs./36.0 kg	56.2 lbs./25.5 kg	49.6 lbs./22.5 kg
Dimension ² (W x H x D) (inch)	TV + stand		63 ¹⁹ / ₃₂ x 39 ⁴⁷ / ₃₂ x 13 ¹ / ₈	54 ¹⁷ / ₃₂ x 34 ¹¹ / ₃₂ x 13 ¹ / ₈	47 ⁹ / ₁₆ x 30 ²³ / ₆₄ x 13 ¹ / ₈
	TV only		63 ¹⁹ / ₃₂ x 38 ⁷ / ₃₂ x 3 ¹ / ₂	54 ¹⁷ / ₃₂ x 33 ¹ / ₂ x 2 ⁵⁹ / ₆₄	47 ⁹ / ₁₆ x 29 ³ / ₃₂ x 2 ²⁷ / ₃₂
Operating temperature			+32°F to +104°F (0°C to +40°C)		

¹ Emergency alert messages via Cable are unreceivable.

² The dimensional drawings are shown on the inside back cover.

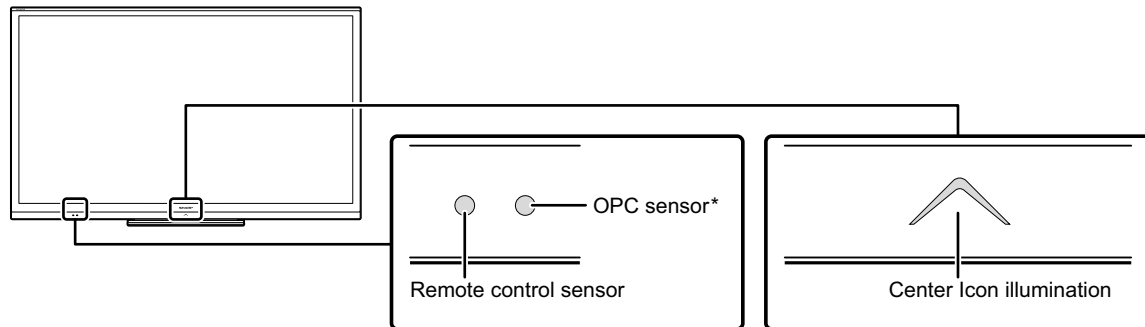
- As part of policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

CHAPTER 2. OPERATION MANUAL

[1] OPERATION MANUAL

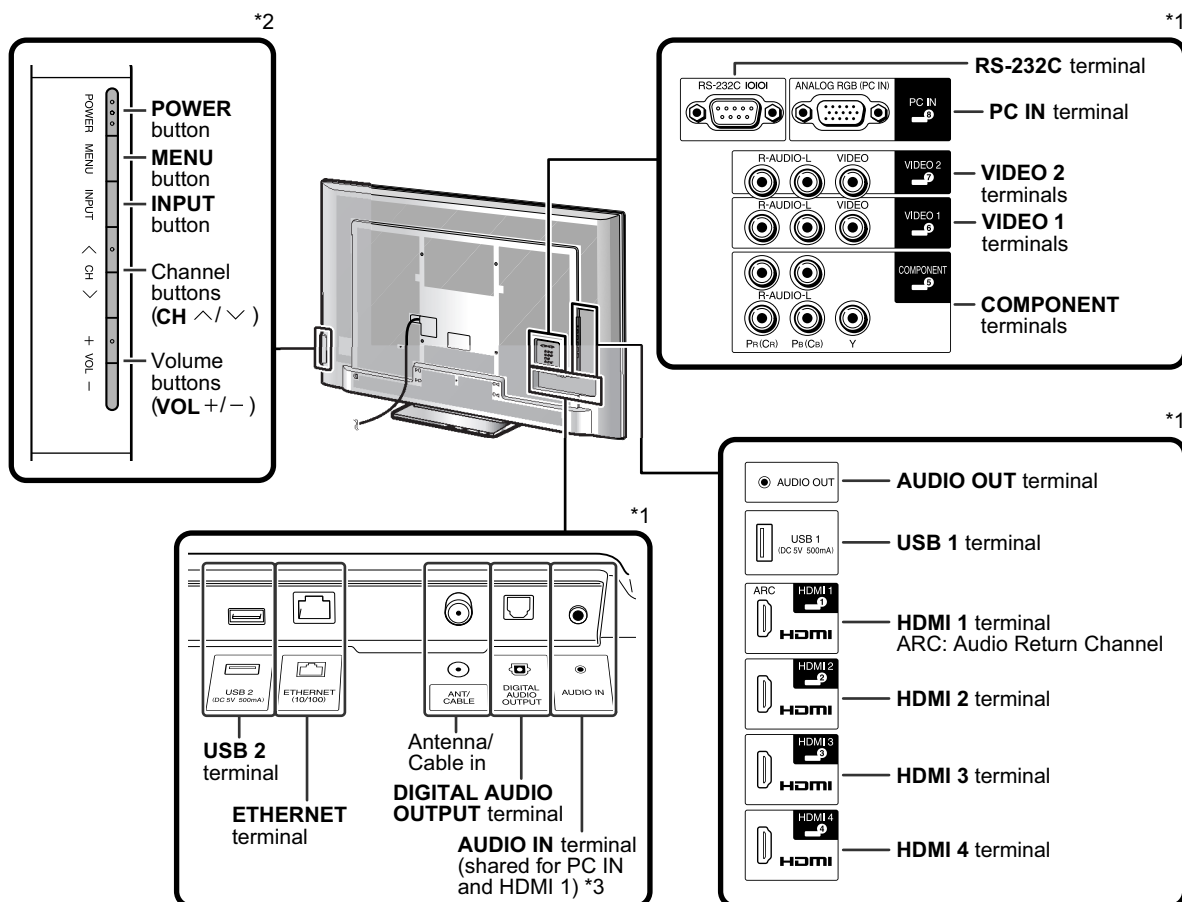
Part Names

TV (Front)



* OPC: Optical Picture Control

TV (Rear/Side)

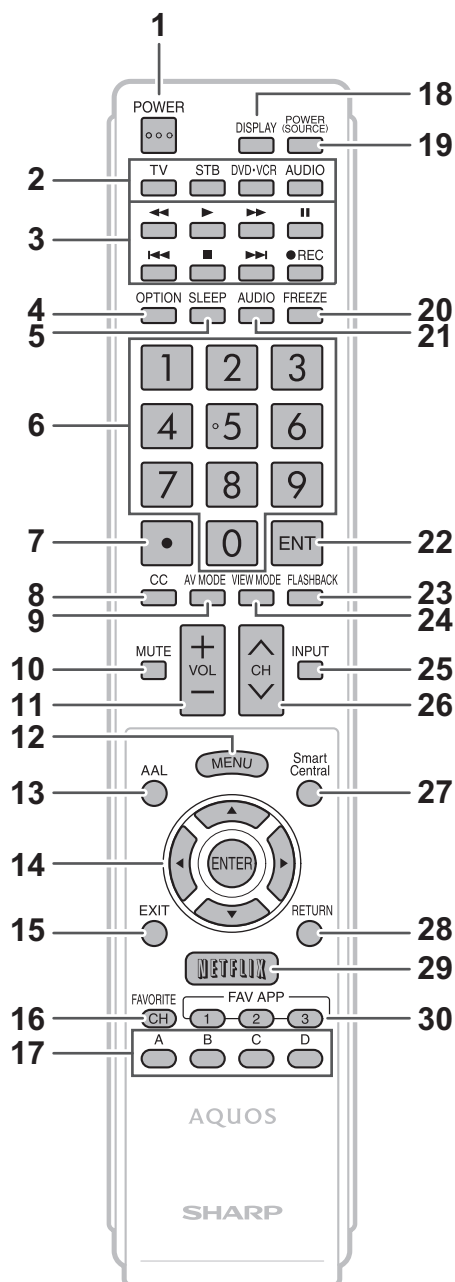


*1 External equipment connection.

*2 Button operations.

*3 Details on the Audio Select function.

Remote Control Unit



NOTE

- When using the remote control unit, point it at the TV.

- 1 POWER:** Switch the TV power on or enter standby.
- 2 TV, STB, DVD-VCR, AUDIO:** Switches the remote control for TV, STB, BD, DVD, VCR and AUDIO operation.
* To enter the code registration mode, you need to press an appropriate button (**STB**, **DVD-VCR** or **AUDIO**) and **DISPLAY** at the same time.
- 3 External equipment operational buttons:** Operate the external equipment.
- 4 OPTION:** Display the Link Operation Menu screen. This button will function only when AQUOS LINK is used.
- 5 SLEEP:** Set the sleep timer.
- 6 0-9:** Set the channel.
- 7 • (DOT)**
- 8 CC:** Display captions from a closed-caption source.
- 9 AV MODE:** Select an audio or video setting.
- 10 MUTE:** Mute the sound.
- 11 VOL+/-:** Set the volume.
- 12 MENU:** Display the menu screen.
- 13 AAL:** Display the TV+Web screen.
- 14 ▲/▼/◀/▶, ENTER:** Select a desired item on the screen.
- 15 EXIT:** Turn off the menu screen.
- 16 FAVORITE CH:** Set the favorite channels.
- 17 A, B, C, D:** Select 4 preset favorite channels in 4 different categories.
While watching, you can toggle the selected channels by pressing **A**, **B**, **C** and **D**.
- 18 DISPLAY:** Display the channel information.
- 19 POWER (SOURCE):** Turns the power of the external equipment on and off.
- 20 FREEZE:** Set the still image. Press again to return to normal screen.
- 21 AUDIO:** Selects the MTS/SAP or the audio mode during multichannel audio broadcasts.
- 22 ENT:** Jumps to a channel after selecting with the **0-9** buttons.
- 23 FLASHBACK:** Return to the previous channel or external input mode.
- 24 VIEW MODE:** Select the screen size.
- 25 INPUT:** Select a TV input source. (TV, HDMI1, HDMI2, HDMI3, HDMI4, COMPONENT, VIDEO1, VIDEO2, PC IN, Home Network (DLNA), USB)
- 26 CH^/v:** Select the channel.
- 27 SmartCentral:** Display the application window.
- 28 RETURN:** Return to the previous menu screen.
- 29 NETFLIX:** Display the Netflix screen.
- 30 FAV APP 1, 2, 3:** You can assign your favorite applications to these buttons.

QUICK REFERENCE

Attaching the Stand

- Before attaching (or detaching) the stand, unplug the AC cord.
- Before performing work spread cushioning over the base area to lay the TV on. This will prevent it from being damaged.

CAUTION

- **Attach the stand in the correct direction.**
- **Do not remove the stand from the TV unless using an optional wall mount bracket to mount it.**
- **Be sure to follow the instructions. Incorrect installation of the stand may result in the TV falling over.**
- **After attaching the stand to the TV, do not hold the stand when you put up, set up, move or lay down the TV.**

- 1** Confirm that there are 12 screws (8 long screws and 4 short screws) supplied with the stand unit.

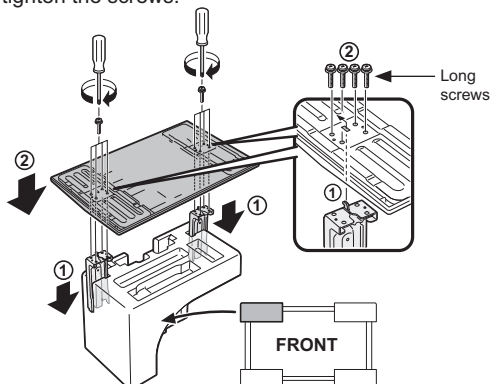


- 2** ① Set the post for the stand unit onto the polystyrene foam.

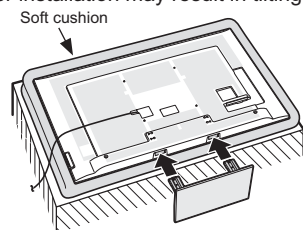
- ② Attach the base to the post.

- ③ Insert and tighten the 8 screws into the 8 holes on the bottom of the base.

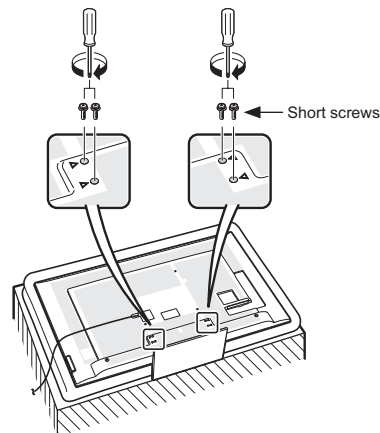
- Hold the stand unit securely with one hand, and then tighten the screws.



- 3** Insert the stand into the openings on the bottom of the TV.
- Make sure that the stand is firmly inserted into the TV. Improper installation may result in tilting of the TV set.

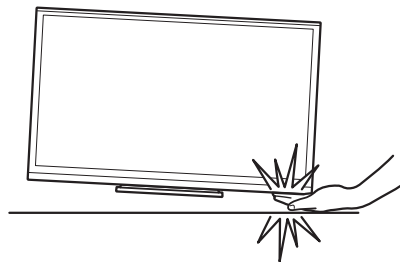


- 4** Insert and tighten the 4 screws into the 4 holes on the rear of the TV.



NOTE

- To detach the stand, perform the steps in reverse order.
- In the installation procedure, be careful not to catch your fingers between the TV set and the floor.

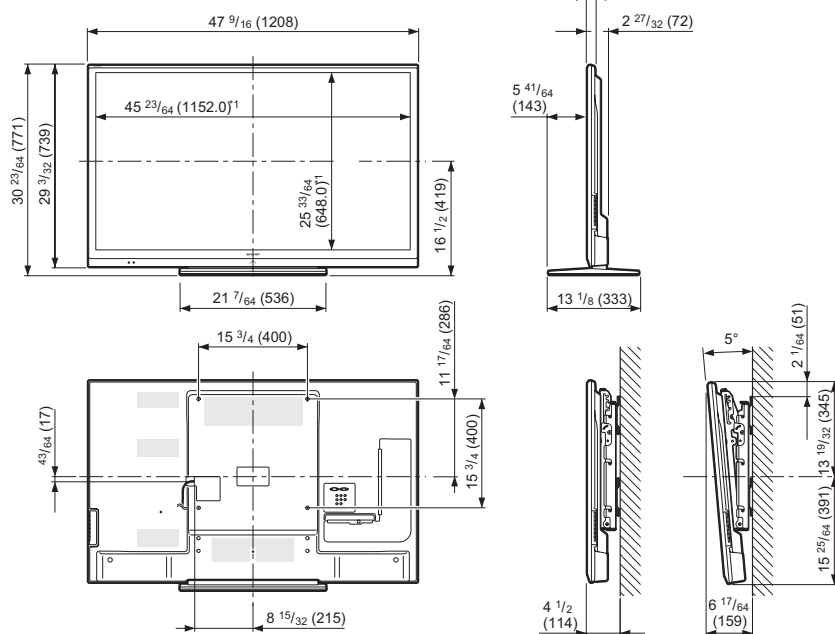


CHAPTER 3. DIMENSIONS

[1] DIMENSIONS (LC-52LE640U/C6400U)

Unit: inch (mm)

LC-52LE640U/LC-52C6400U

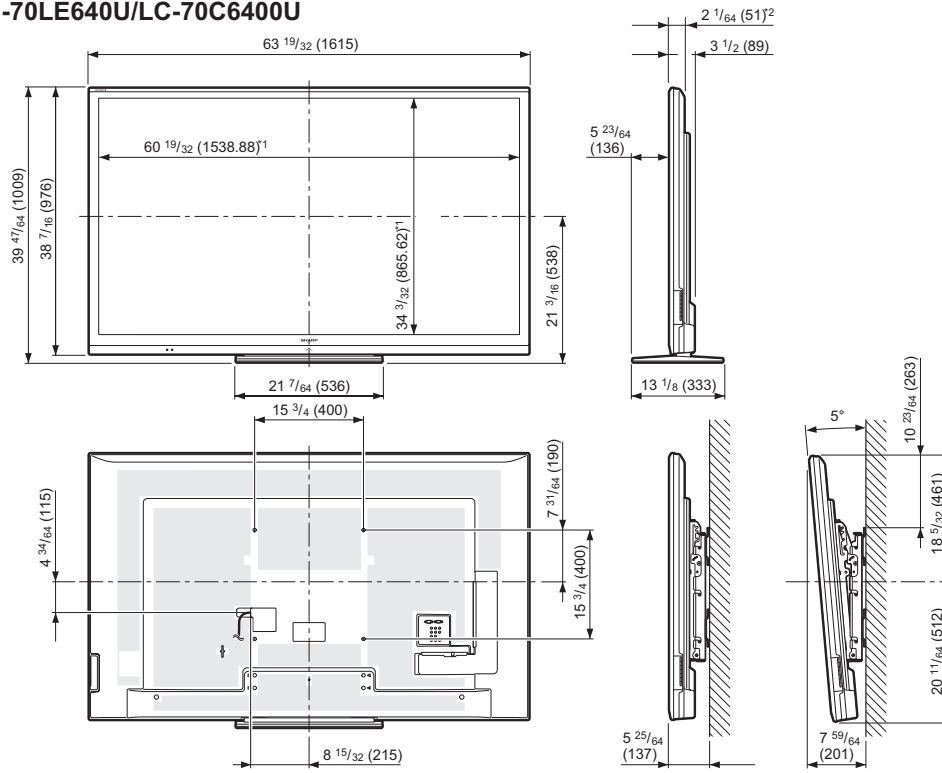
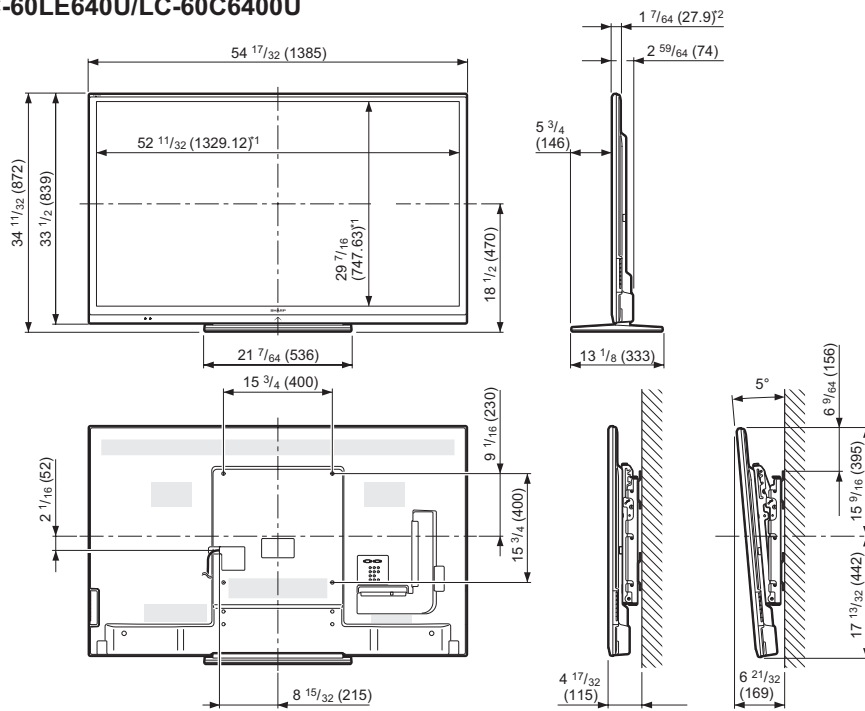


AN-52AG4

^{*1} Active area
^{*2} Thinnest part

[2] DIMENSIONS (LC-60/70LE640U,C6400U)

Unit: inch (mm)

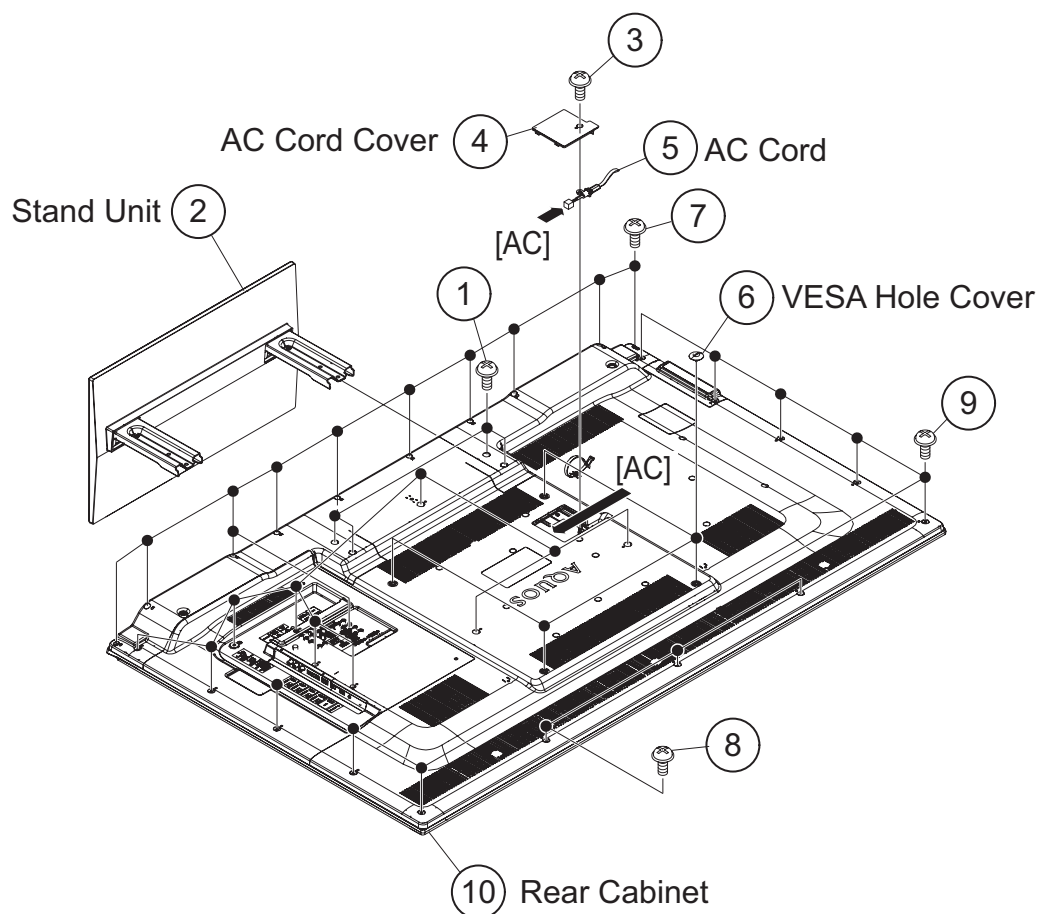
LC-70LE640U/LC-70C6400U**AN-52AG4****LC-60LE640U/LC-60C6400U****AN-52AG4**^{*1} Active area^{*2} Thinnest part

CHAPTER 4. REMOVING OF MAJOR PARTS

[1] REMOVING OF MAJOR PARTS (LC-52LE640U/C6400U)

1. Removing of Stand Unit and Rear Cabinet.

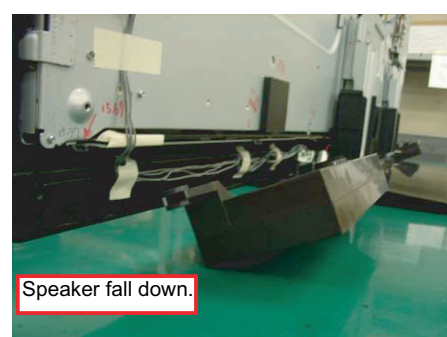
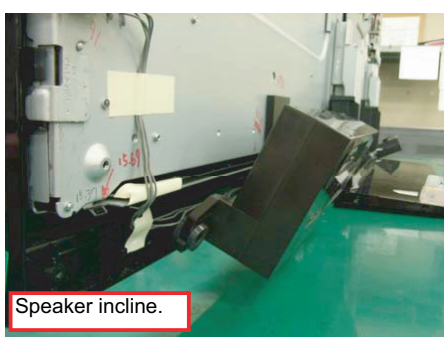
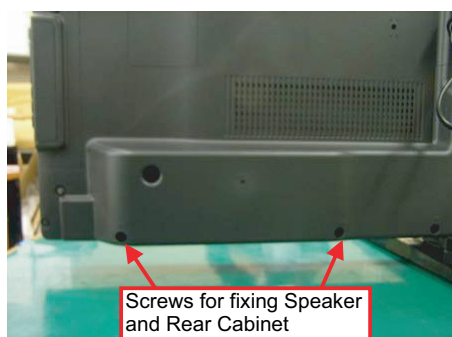
1. Remove the 4 lock screws ① and detach the Stand Unit ②.
2. Remove the 1 lock screw ③ and detach the AC Cord Cover ④.
3. Disconnect AC wire and detach the AC Cord ⑤.
4. Remove the 4 VESA Hole Covers ⑥, 11 lock screws ⑦, 3 lock screws ⑧ and 17 lock screws ⑨ and detach the Rear Cabinet ⑩.



[Precaution when removing the rear cabinet]

If the rear cabinet is removed with the set upright, the speakers may fall; it results in connector disconnection. Therefore, never remove the rear cabinet with the set upright.

Be sure to remove the rear cabinet with the screen side down.



[Precaution when mounting the rear cabinet]

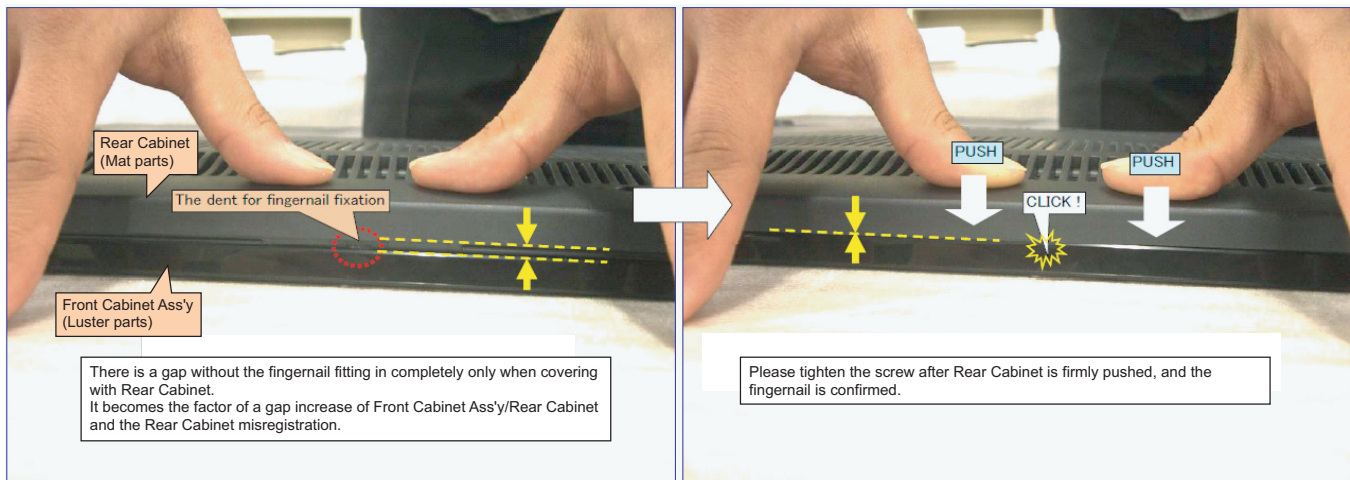
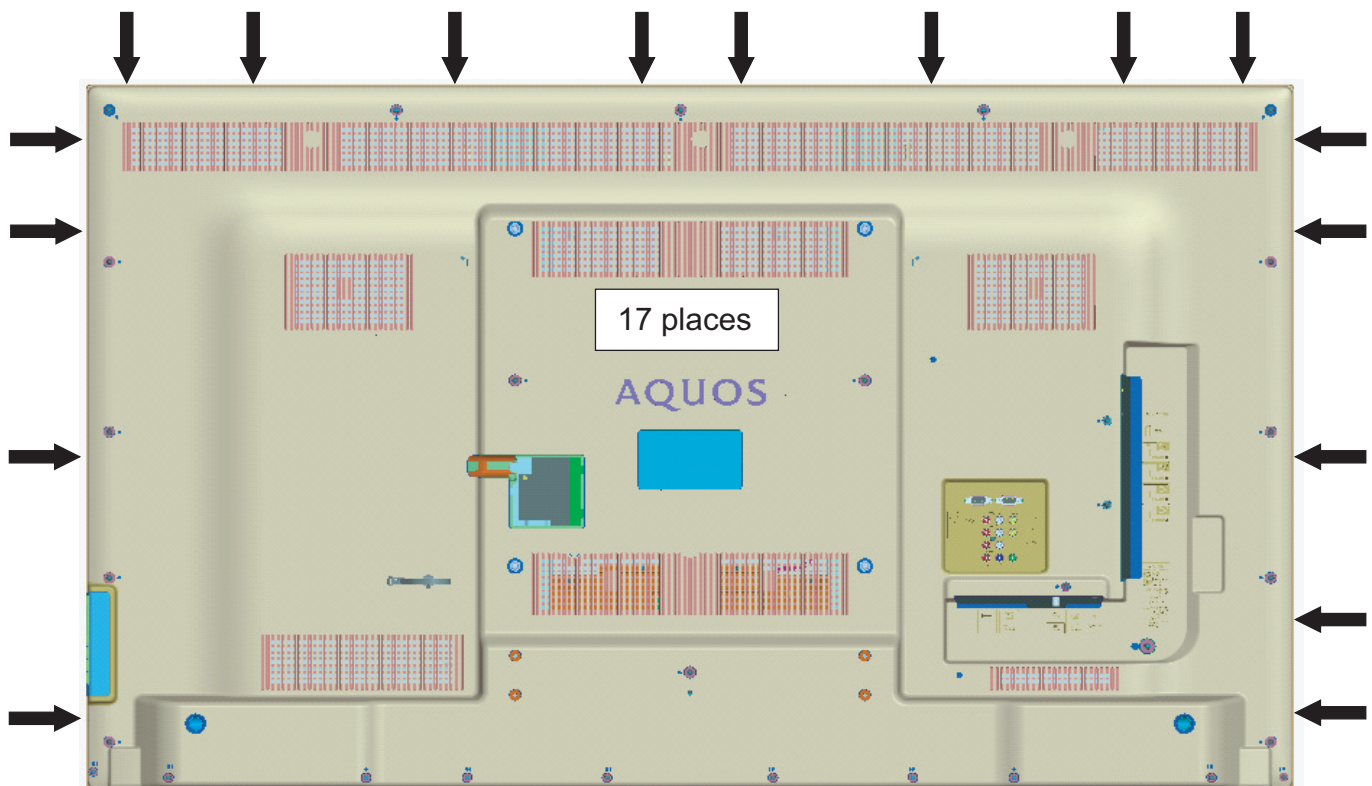
Put the speakers in place with the screen side down, and attach the rear cabinet.

Since the speakers are fixed by the rear cabinet, they cannot be fixed without the rear cabinet.

[Precautions when fixing the Rear Cabinet]

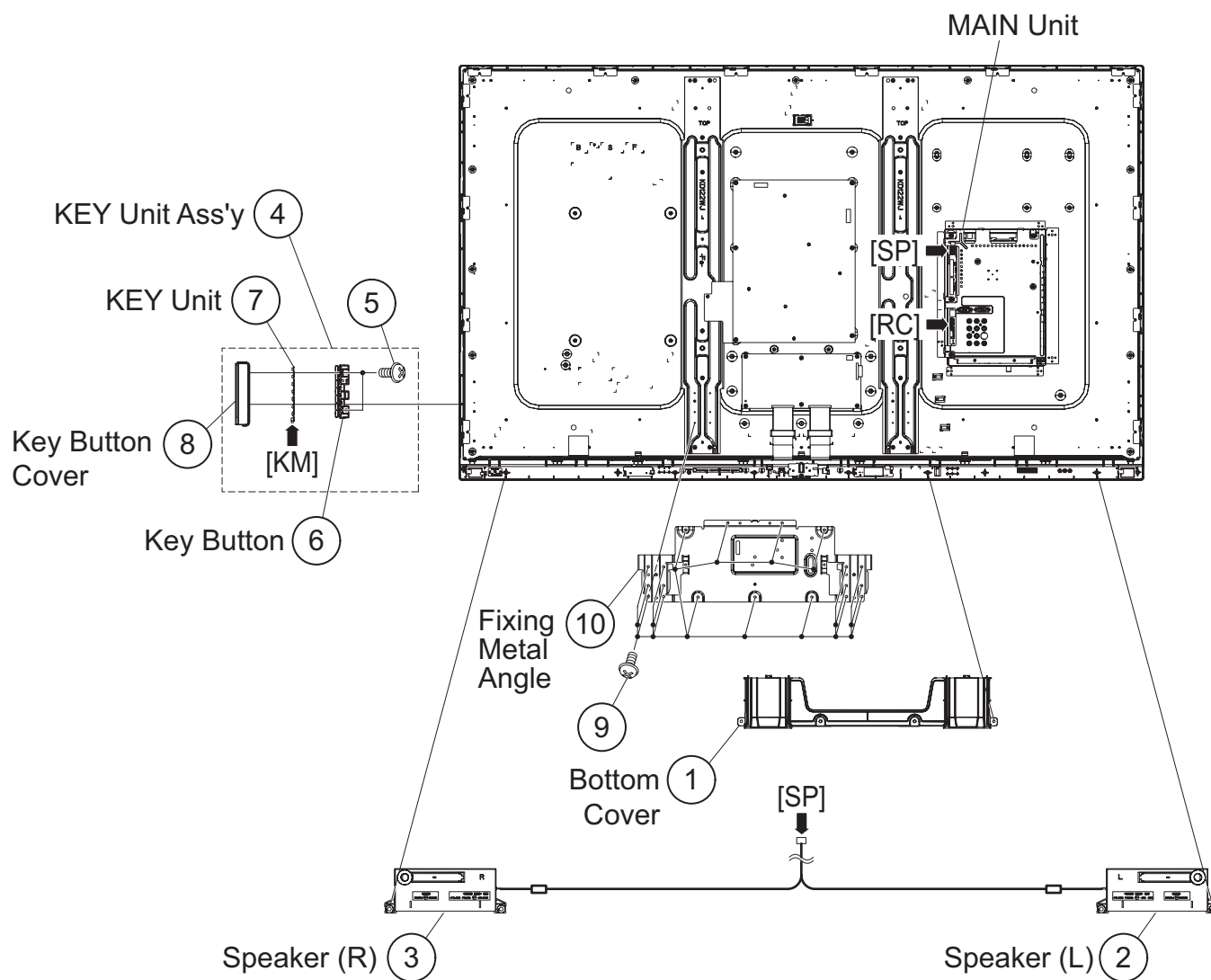
When fixing the Rear Cabinet, be careful not to catch the backlight LED harness, speaker harness and other harnesses in it.

- The hooks on the external wall of the Rear Cabinet are fitted in the Front Cabinet Ass'y. After putting the Rear Cabinet in place, fit the hooks securely; then tighten the screws.

(Work method of Rear Cabinet fixation)**(Front Cabinet Ass'y/Rear Cabinet fingernail fixation place)**

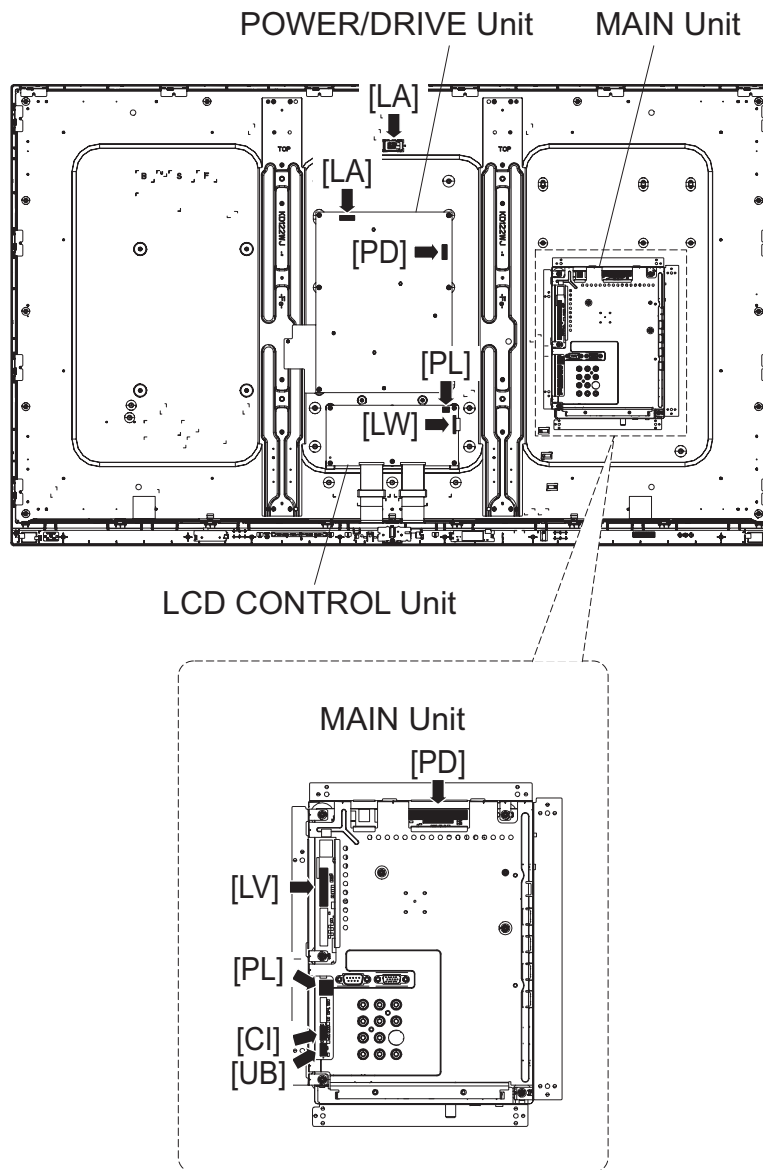
2. Removing of Speaker (L/R), KEY Unit and Fixing Metal Angle.

1. Detach the Bottom Cover ①.
2. Disconnect the SP wire.
3. Detach the Speaker (L) ②, Speaker (R) ③.
4. Disconnect the RC wire.
5. Detach the KEY Unit Ass'y ④.
6. Disconnect the KM wire.
7. Remove the 2 lock screws ⑤ and detach the Key Button ⑥ from Key Button Cover ⑧.
8. Detach the KEY Unit ⑦ from Key Button ⑥.
9. Remove the 19 lock screws ⑨ and detach the Fixing Metal Angle ⑩.



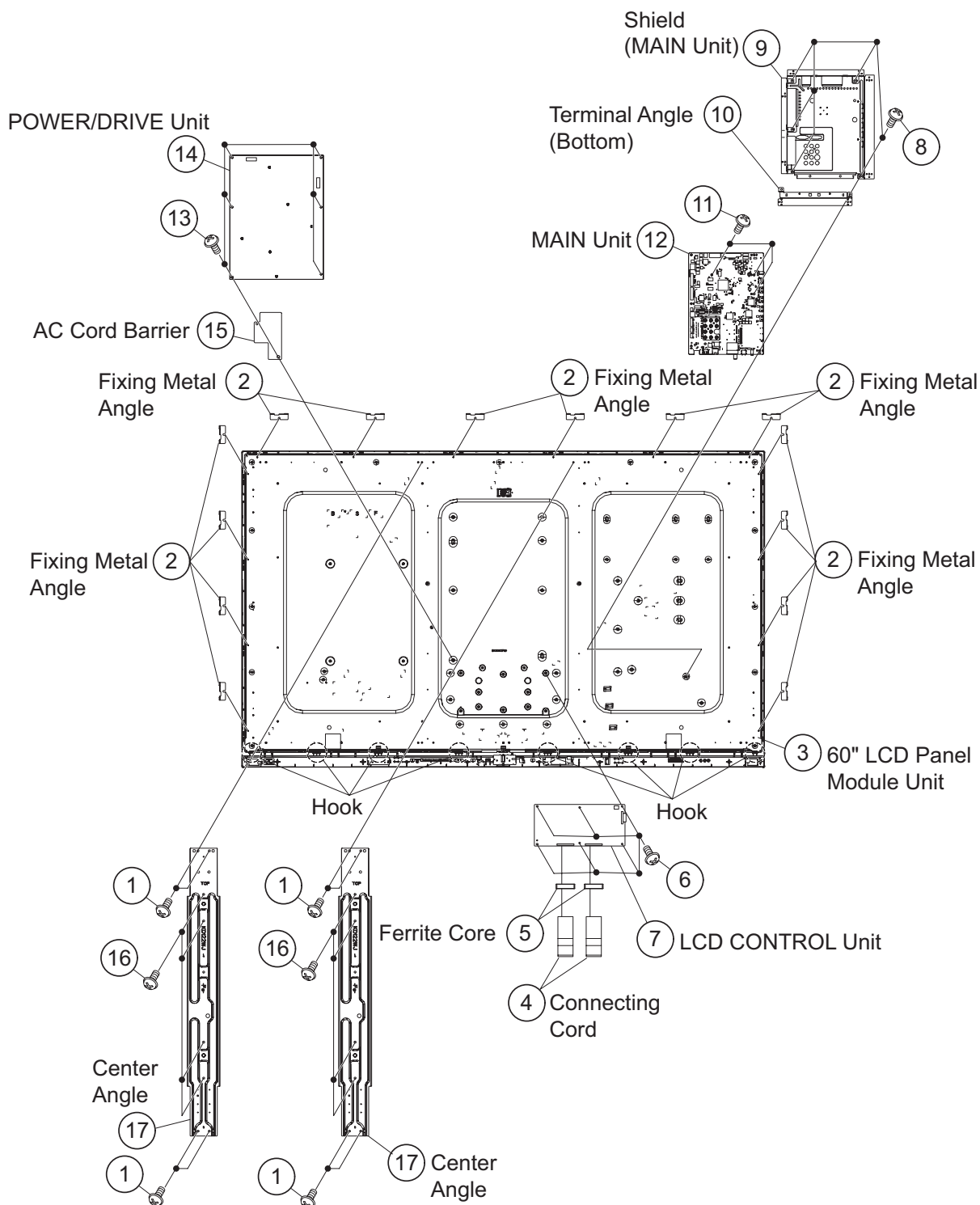
3. Removing of Connectors

1. Disconnect the following connectors from the MAIN Unit. (PD, LV, PL, CI, UB)
2. Disconnect the following connectors from the POWER/DRIVE Unit. (PD, LA)
3. Disconnect the following connectors from the LCD CONTROL Unit. (LW, PL)



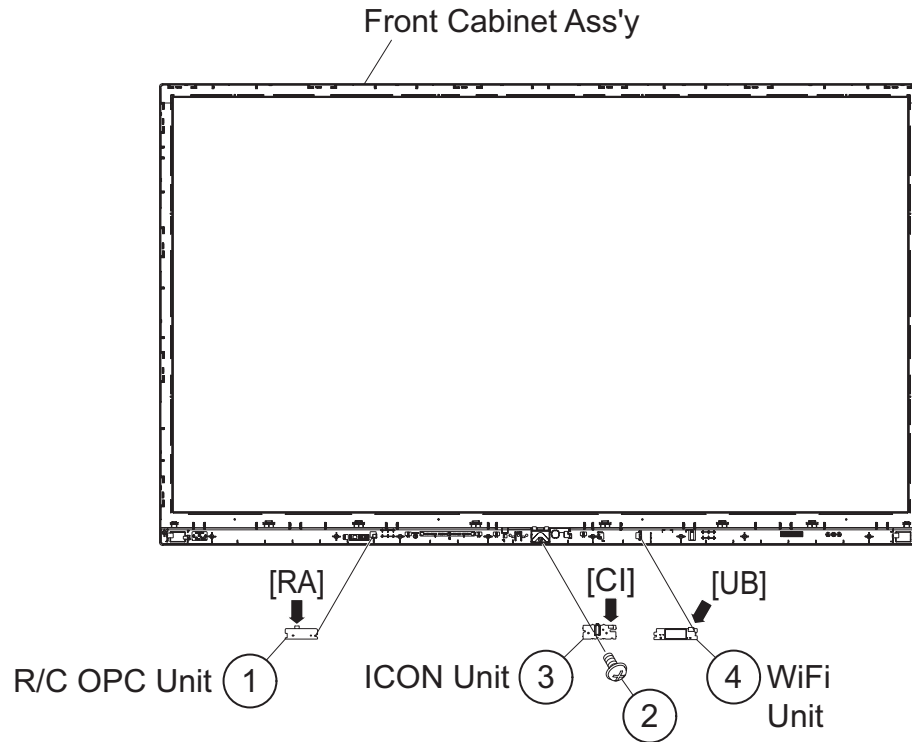
4. Removing of 60" LCD Panel Module Unit, LCD CONTROL Unit, MAIN Unit, POWER/DRIVE Unit.

1. Remove the 8 lock screws ①.
2. Detach the 14 Fixing Metal Angles ②.
3. Remove the 8 Hooks and detach the 60" LCD Panel Module Unit ③.
4. Remove the 2 Connecting Cords ④, 2 Ferrite Cores ⑤ and 6 lock screws ⑥ and detach the LCD CONTROL Unit ⑦.
5. Remove the 5 lock screws ⑧ and detach the Shield (MAIN Unit) ⑨.
6. Remove the 3 lock screws ⑪ and detach the MAIN Unit ⑫ and Terminal Angle (Bottom) ⑩.
7. Remove the 6 lock screws ⑬ and detach the POWER/DRIVE Unit ⑭ and AC Cord Barrier ⑮.
8. Remove the 8 lock screws ⑯ and detach the 2 Center Angles ⑰.



5. Removing of R/C OPC Unit, ICON Unit, WiFi Unit.

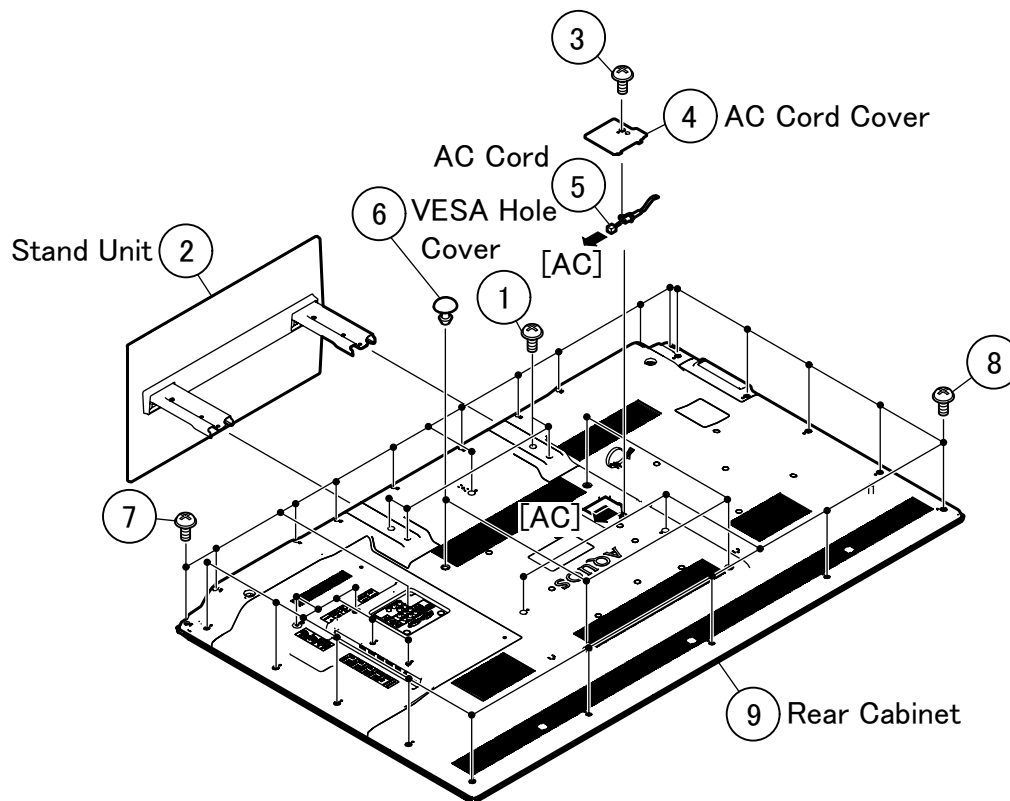
1. Detach the R/C OPC Unit ①.
2. Disconnect the RA wire.
3. Remove the 1 lock screw ② and detach the ICON Unit ③.
4. Disconnect the CI wire.
5. Detach the WiFi Unit ④.
6. Disconnect the UB wire.



[2] REMOVING OF MAJOR PARTS (LC-60LE640U/C6400U)

1. Removing of Stand Unit and Rear Cabinet.

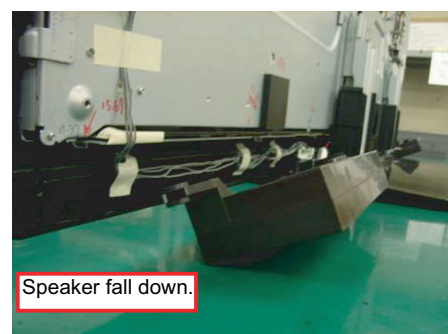
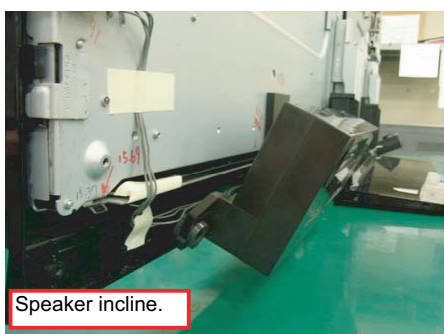
1. Remove the 4 lock screws ① and detach the Stand Unit ②.
2. Remove the 1 lock screw ③ and detach the AC Cord Cover ④.
3. Disconnect AC wire and detach the AC Cord ⑤.
4. Remove the 4 VESA Hole Covers ⑥, 11 lock screws ⑦, 20 lock screws ⑧ and detach the Rear Cabinet ⑨.



[Precaution when removing the rear cabinet]

If the rear cabinet is removed with the set upright, the speakers may fall; it results in connector disconnection. Therefore, never remove the rear cabinet with the set upright.

Be sure to remove the rear cabinet with the screen side down.



[Precaution when mounting the rear cabinet]

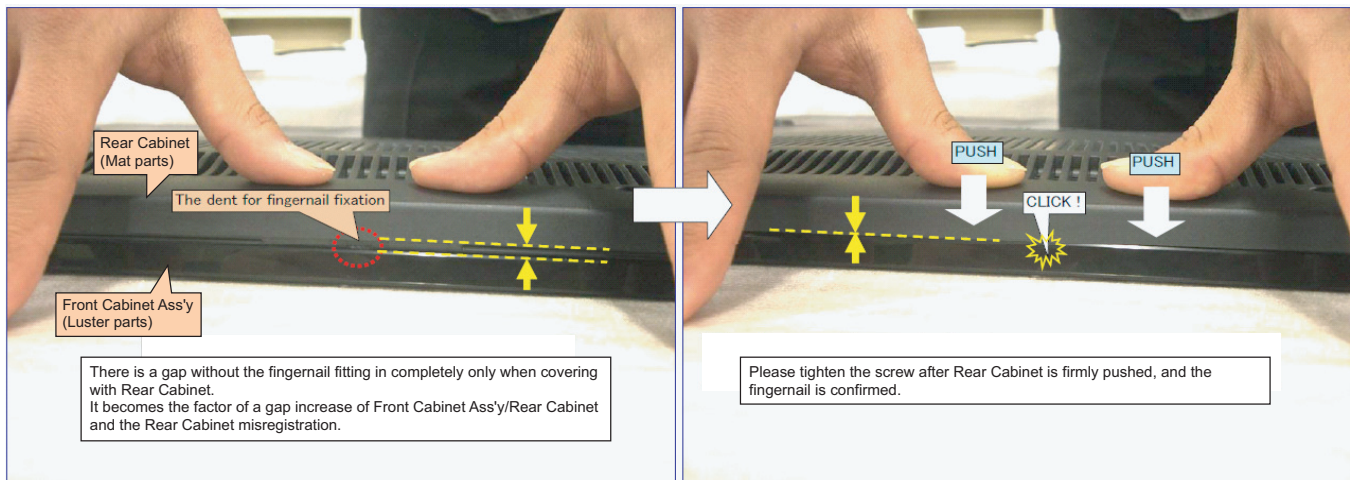
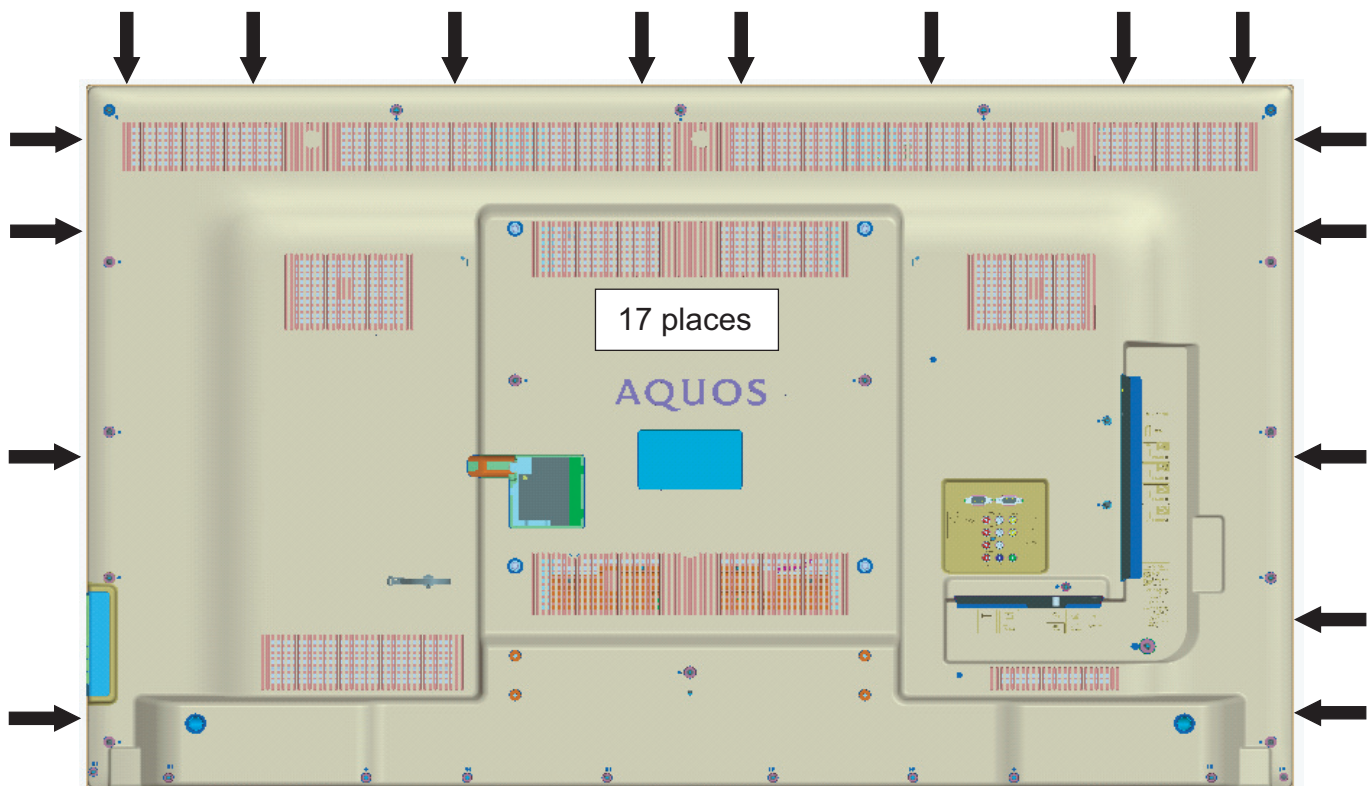
Put the speakers in place with the screen side down, and attach the rear cabinet.

Since the speakers are fixed by the rear cabinet, they cannot be fixed without the rear cabinet.

[Precautions when fixing the Rear Cabinet]

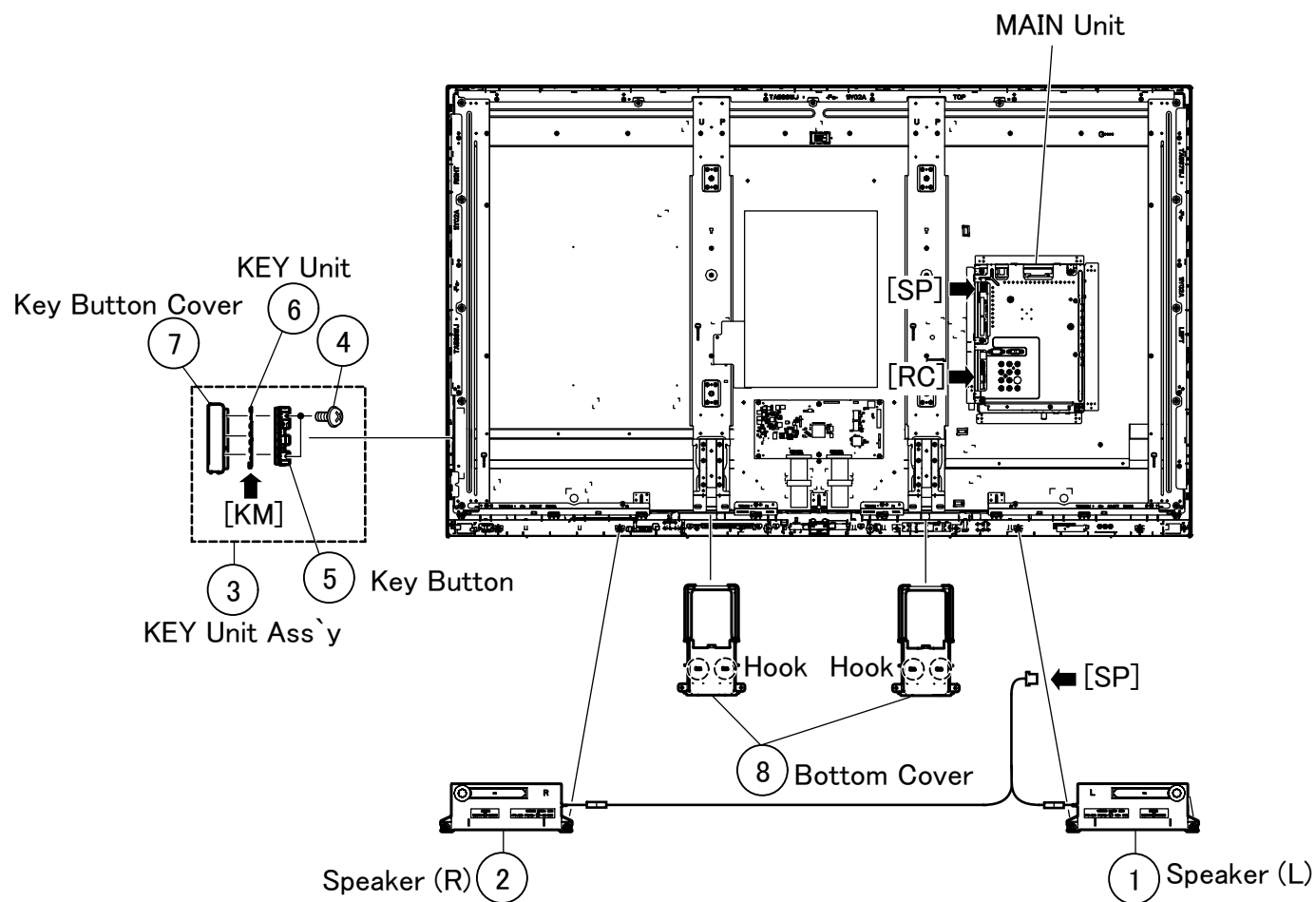
When fixing the Rear Cabinet, be careful not to catch the backlight LED harness, speaker harness and other harnesses in it.

- The hooks on the external wall of the Rear Cabinet are fitted in the Front Cabinet Ass'y. After putting the Rear Cabinet in place, fit the hooks securely; then tighten the screws.

(Work method of Rear Cabinet fixation)**(Front Cabinet Ass'y/Rear Cabinet fingernail fixation place)**

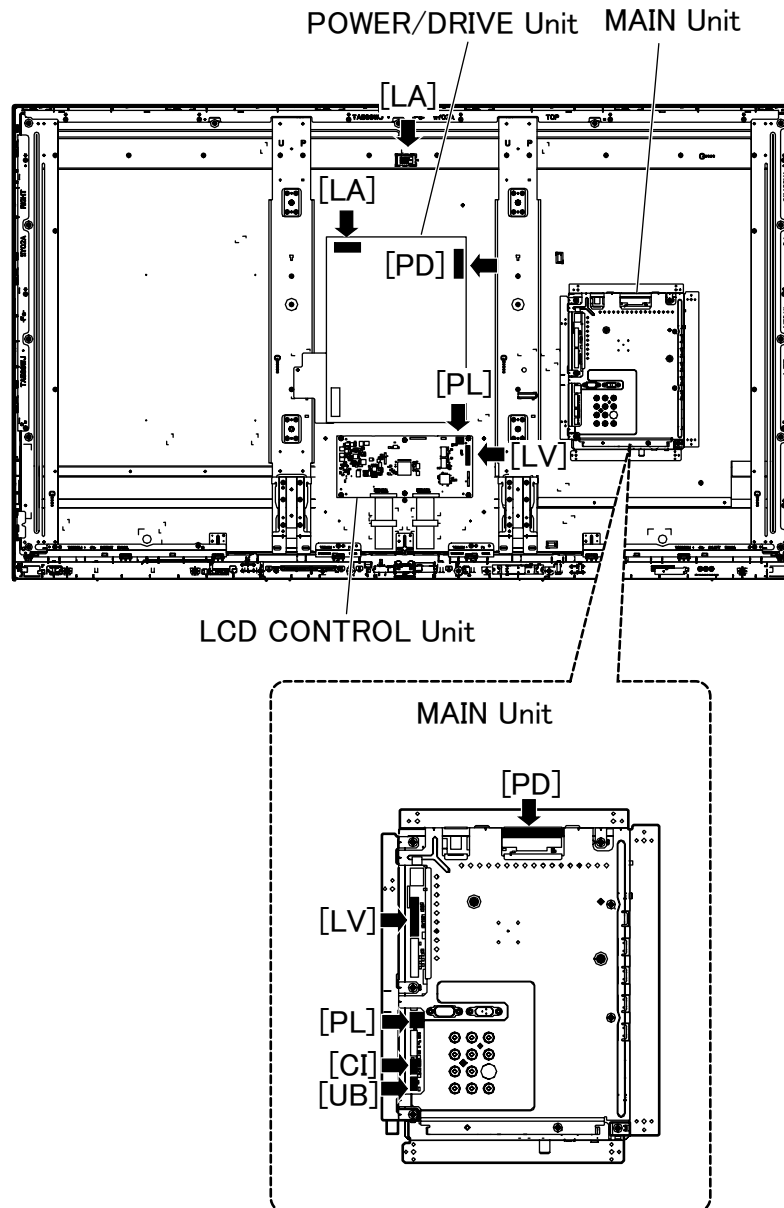
2. Removing of Speaker (L/R), KEY Unit and Fixing Metal Angle.

1. Detach the Speaker (L) ①, Speaker (R) ②.
2. Disconnect the SP wire.
3. Disconnect the RC wire.
4. Detach the KEY Unit Ass'y ③.
5. Disconnect the KM wire.
6. Remove the 2 lock screws ④ and detach the Key Button ⑤ from Key Button Cover ⑦.
7. Detach the KEY Unit ⑥ from Key Button ⑤.
8. Remove the 4 Hooks and detach the 2 Bottom Cover ⑧.



3. Removing of Connectors

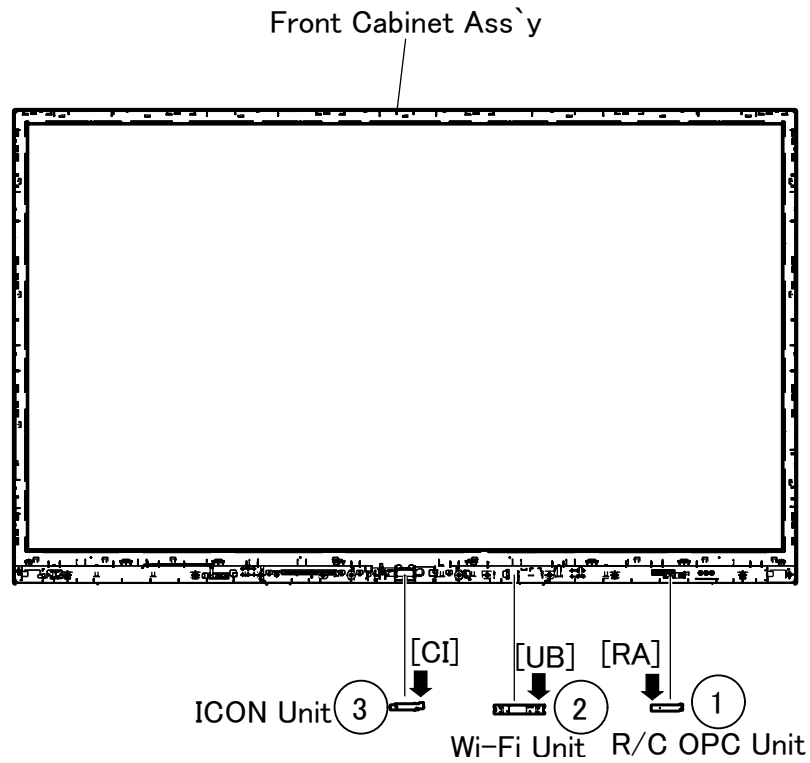
1. Disconnect the following connectors from the MAIN Unit. (PD, LV, PL, CI, UB)
2. Disconnect the following connectors from the POWER/DRIVE Unit. (PD, LA)
3. Disconnect the following connectors from the LCD CONTROL Unit. (LV, PL)



-
- Diagram illustrating the components and assembly points for the 60" LCD Panel Module Unit. The main unit is shown with various internal components and external connectors. Key components labeled include:
- 60" LCD Panel Module Unit (1)
 - MAIN PWB Shield (7)
 - MAIN Unit (9)
 - Terminal Angle (Bottom) (10)
 - VESA Angle Ass'y (16, 17)
 - POWER/DRIVE Unit (12)
 - Hook (11)
 - AC Code Barrier (13)
 - Support Ass'y (15)
 - LCD CONTROL Unit (5)
 - Ferrite Core (3)
 - Conneting Cord (2)

5. Removing of R/C OPC Unit, ICON Unit, WiFi Unit.

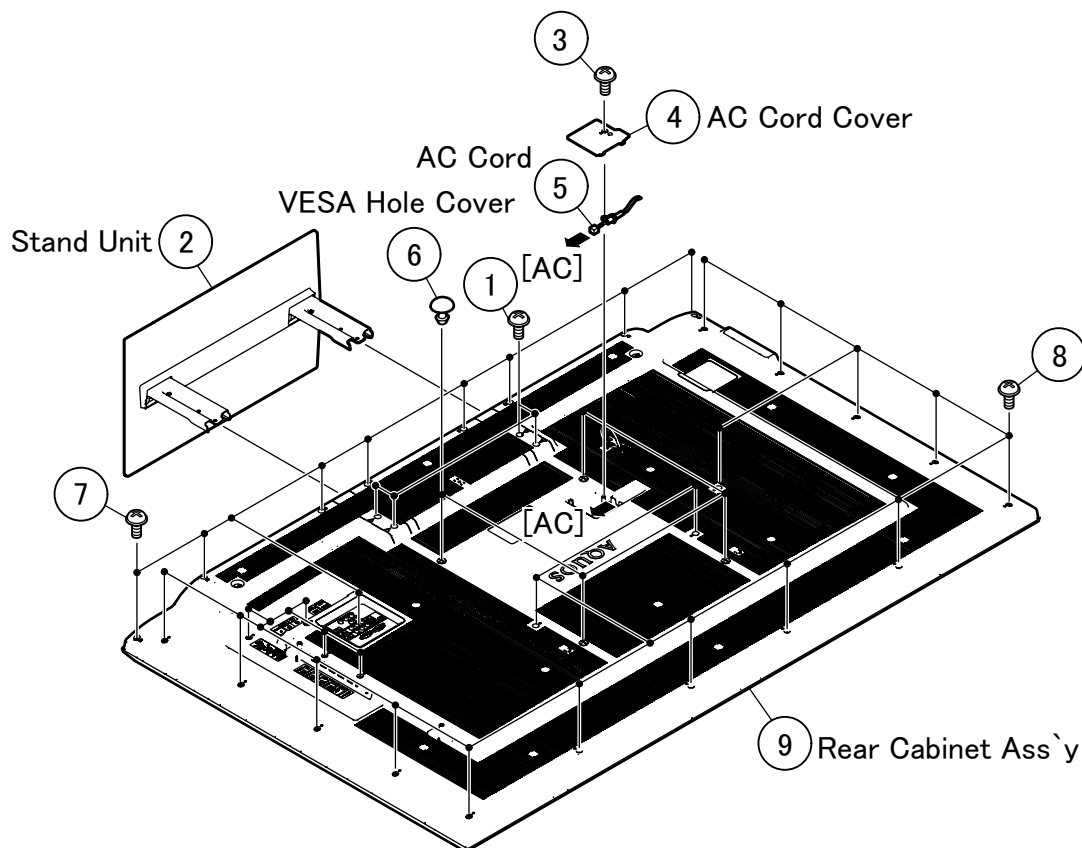
1. Detach the R/C OPC Unit ①.
2. Disconnect the RA wire.
3. Detach the ICON Unit ②.
4. Disconnect the CI wire.
5. Detach the Wi-Fi Unit ③.
6. Disconnect the UB wire.



[3] REMOVING OF MAJOR PARTS (LC-70LE640U/C6400U)

1. Removing of Stand Unit and Rear Cabinet Ass'y.

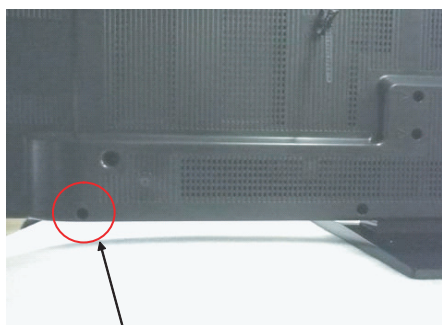
1. Remove the 4 lock screws ① and detach the Stand Unit ②.
2. Remove the 1 lock screw ③ and detach the AC Cord Cover ④.
3. Disconnect AC wire and detach the AC Cord ⑤.
4. Remove the 4 VESA Hole Covers ⑥, 9 lock screws ⑦ and 21 lock screws ⑧ and detach the Rear Cabinet Ass'y ⑨.



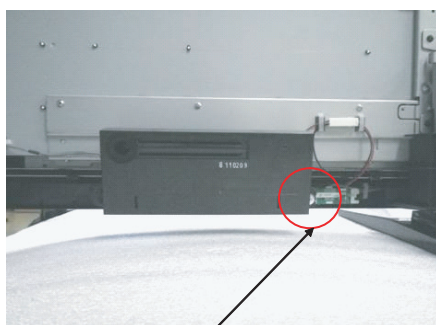
[Precautions when mounting and removing the rear cabinet]

Basically, there is no problem as in LC-60LE632U. However, the screws on both sides are not tightened together with the Rear Cabinet Ass'y. The inside is fixed by the module and Speaker.

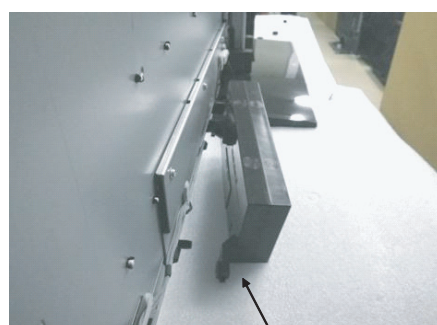
Therefore, it does not come away completely, but only one side can come off.



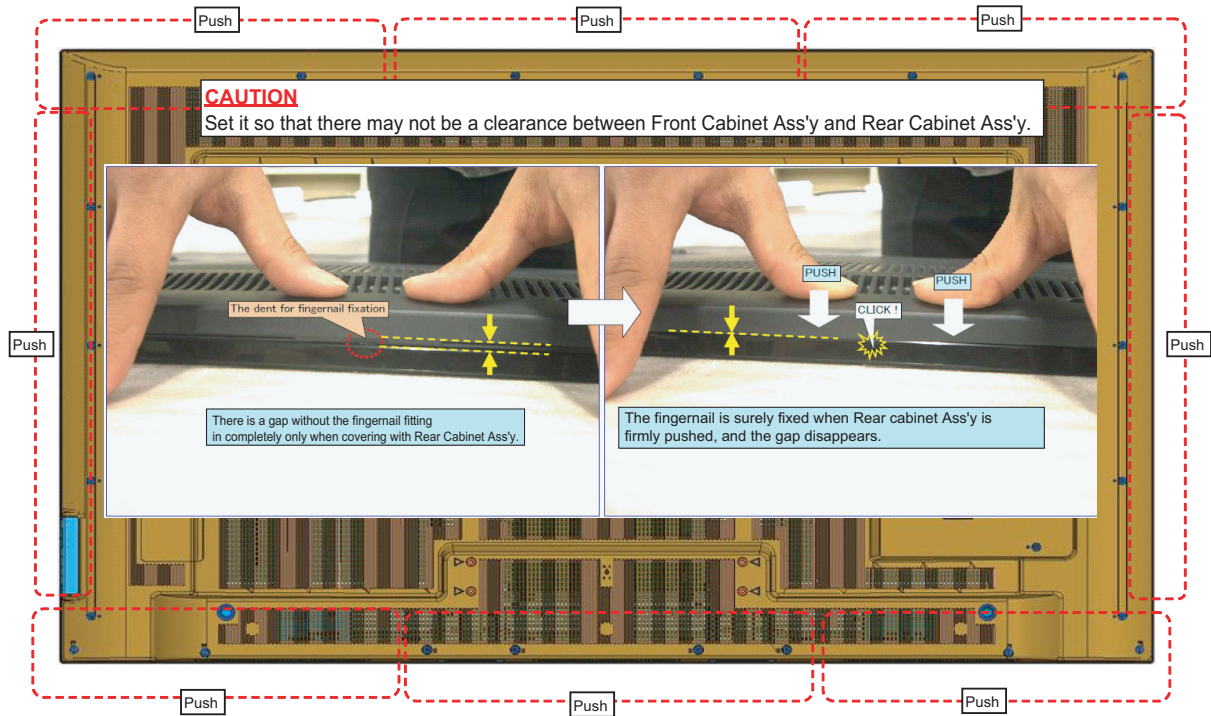
Tighten together with the Rear Cabinet Ass'y.



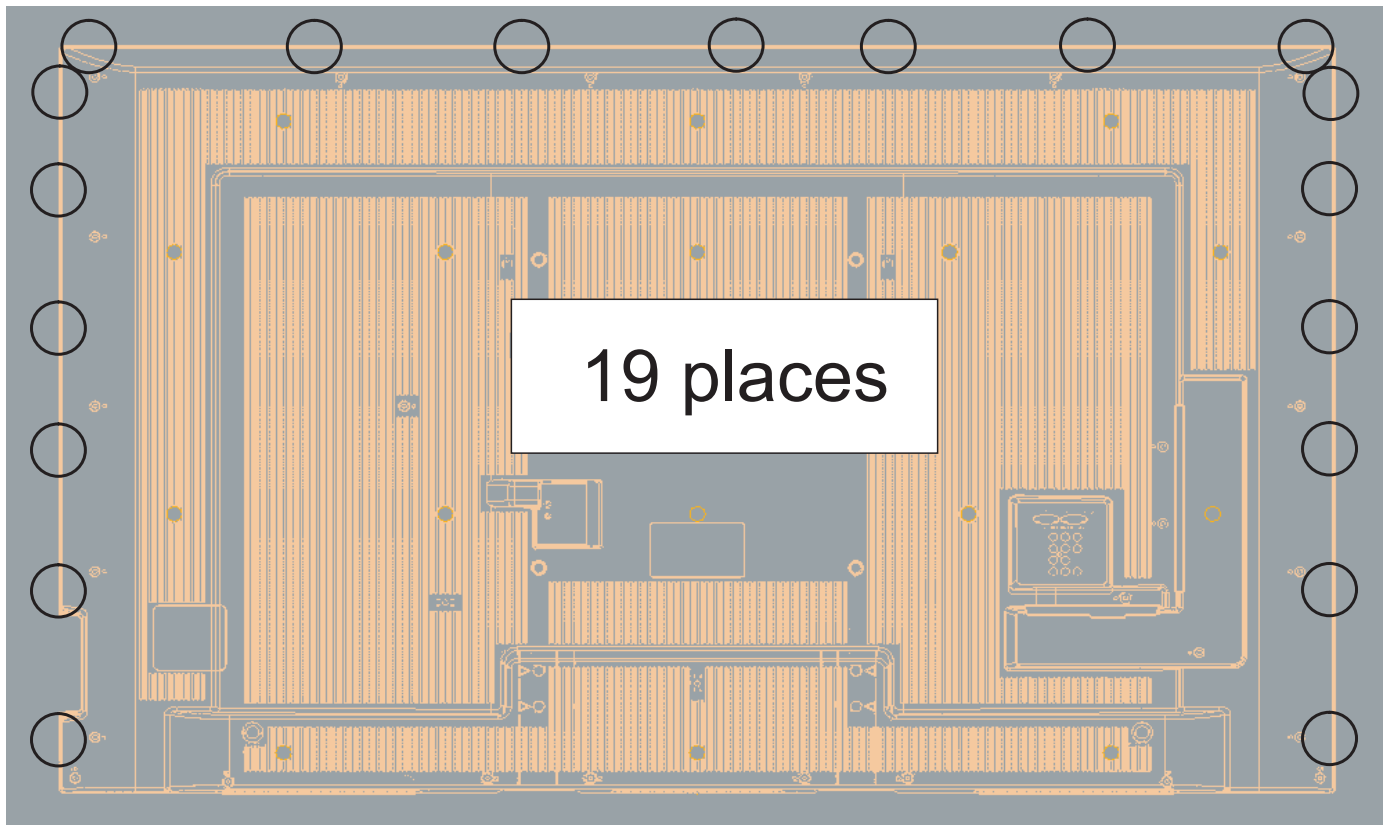
Fix with the 70" LCD Panel Module Unit.



Only one side (outer) can come off.

[Precautions for assembly]

(Front Cabinet Ass'y/Rear Cabinet Ass'y fingernail fixation place)

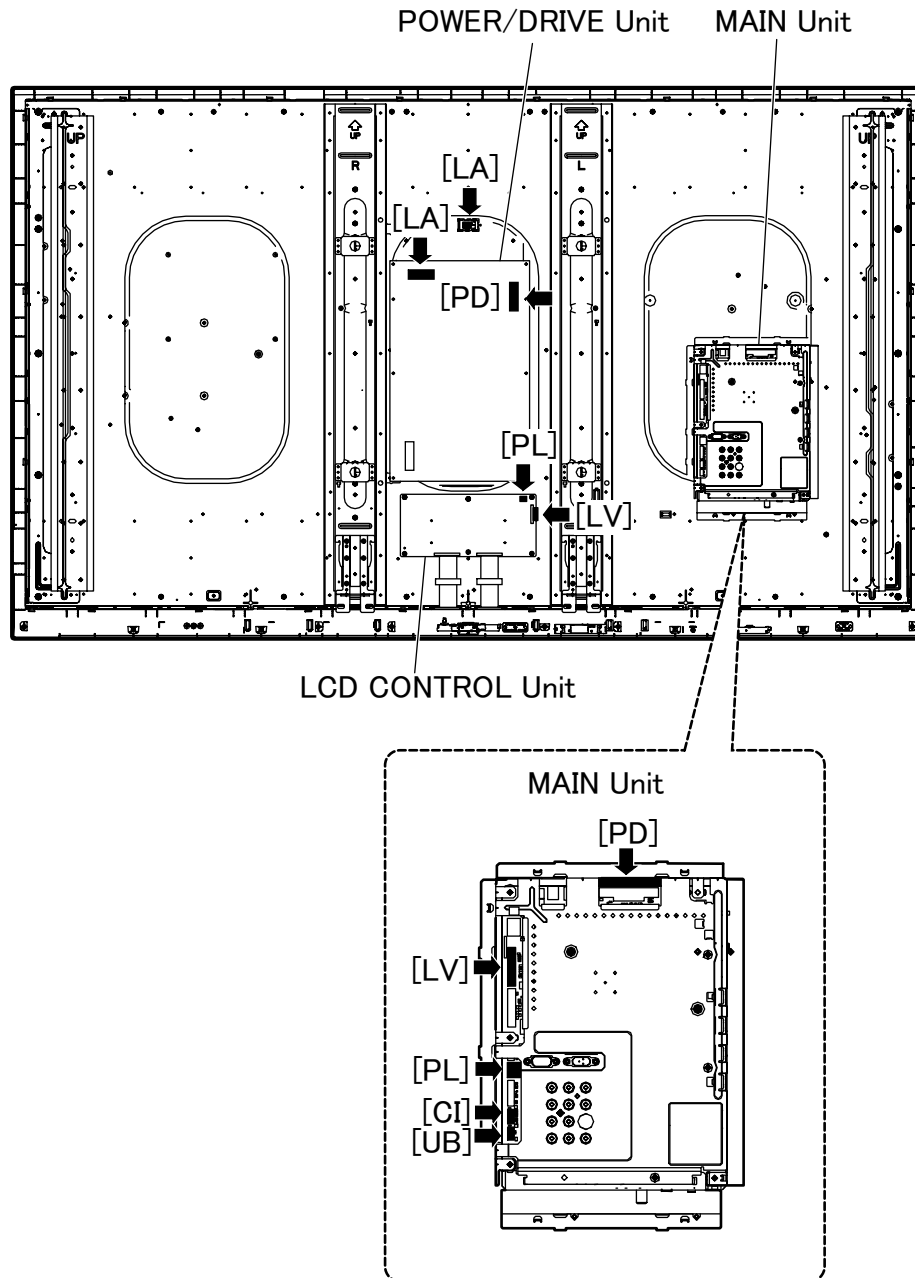


1. Disconnect the SP wire.
2. Remove the 2 lock screws ① and detach the Speaker (L) ②, Speaker (R) ③.
3. Disconnect the RC wire.
4. Detach the KEY Unit Ass'y ④.
5. Disconnect the KM wire.
6. Remove the 2 lock screws ⑤ and detach the Key Button ⑥ from Key Button Cover ⑧.
7. Detach the KEY Unit ⑦ from Key Button ⑥.
8. Remove the 4 Hooks and detach the 2 Bottom Cover ⑨.



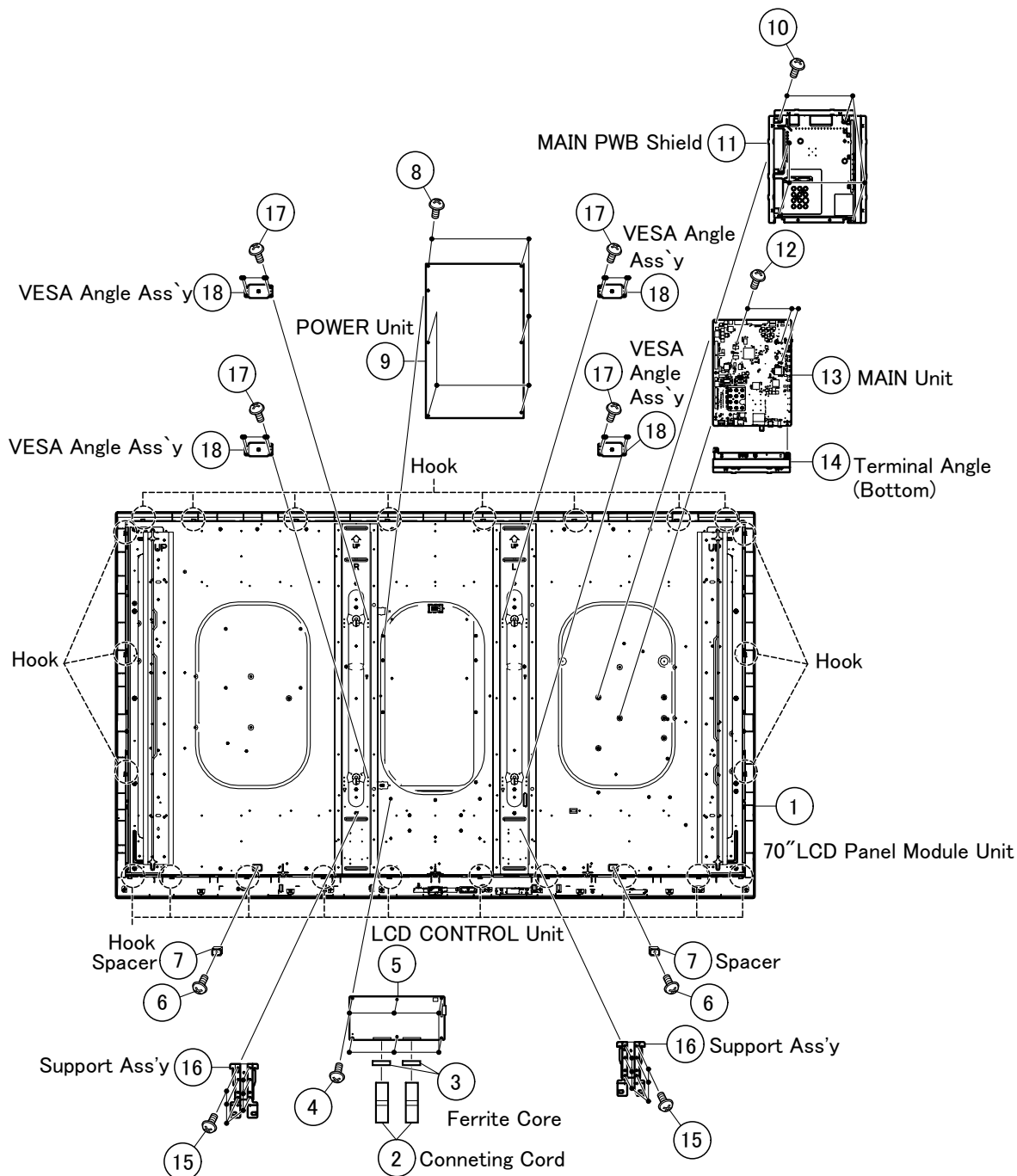
3. Removing of Connectors

1. Disconnect the following connectors from the MAIN Unit. (PD, LV, PL, CI, UB)
2. Disconnect the following connectors from the POWER/DRIVE Unit. (PD, LA)
3. Disconnect the following connectors from the LCD CONTROL Unit. (LV, PL)



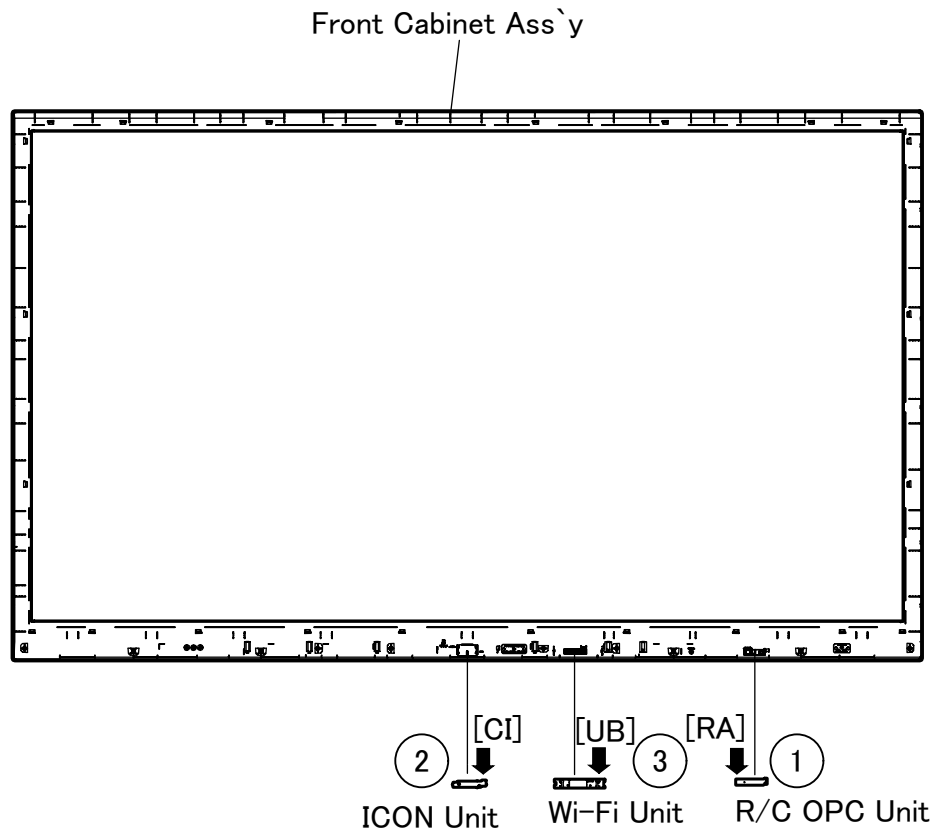
4. Removing of 70" LCD Panel Module Unit, LCD CONTROL Unit, MAIN Unit, POWER Unit.

1. Remove the 24 Hooks and detach the 70" LCD Panel Module Unit ①.
2. Remove the 2 Connecting Cords ②, 2 Ferrite Cores ③, 6 lock screws ④ and detach the LCD CONTROL Unit ⑤.
3. Remove the 2 lock screws ⑥ and detach the 2 Spacers ⑦.
4. Remove the 6 lock screws ⑧ and detach the POWER Unit ⑨.
5. Remove the 5 lock screws ⑩ and detach the MAIN PWB Shield ⑪.
6. Remove the 3 lock screws ⑫ and detach the MAIN Unit ⑬ and Terminal Angle (Bottom) ⑭.
7. Remove the 12 lock screws ⑮ and detach the 2 Support Ass'y ⑯.
8. Remove the 16 lock screws ⑰ and detach the 4 VESA Angle Ass'ys ⑱.



5. Removing of R/C OPC Unit, ICON Unit, WiFi Unit.

1. Detach the R/C OPC Unit ①.
2. Disconnect the RA wire.
3. Detach the ICON Unit ②.
4. Disconnect the CI wire.
5. Detach the Wi-Fi Unit ③.
6. Disconnect the UB wire.



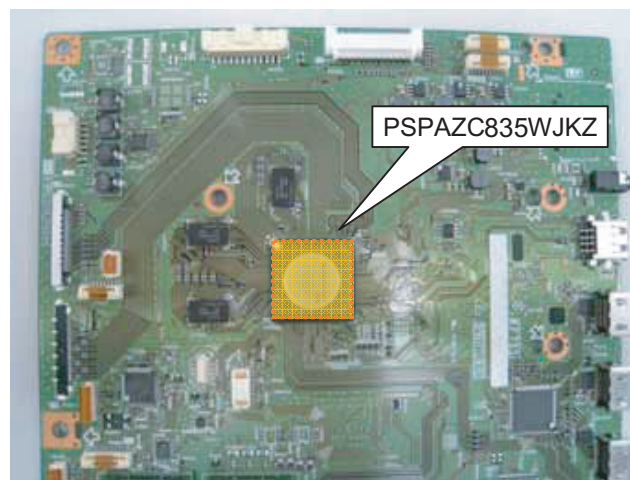
[4] The location putting on the heat measure sheet

1. MAIN PWB Unit

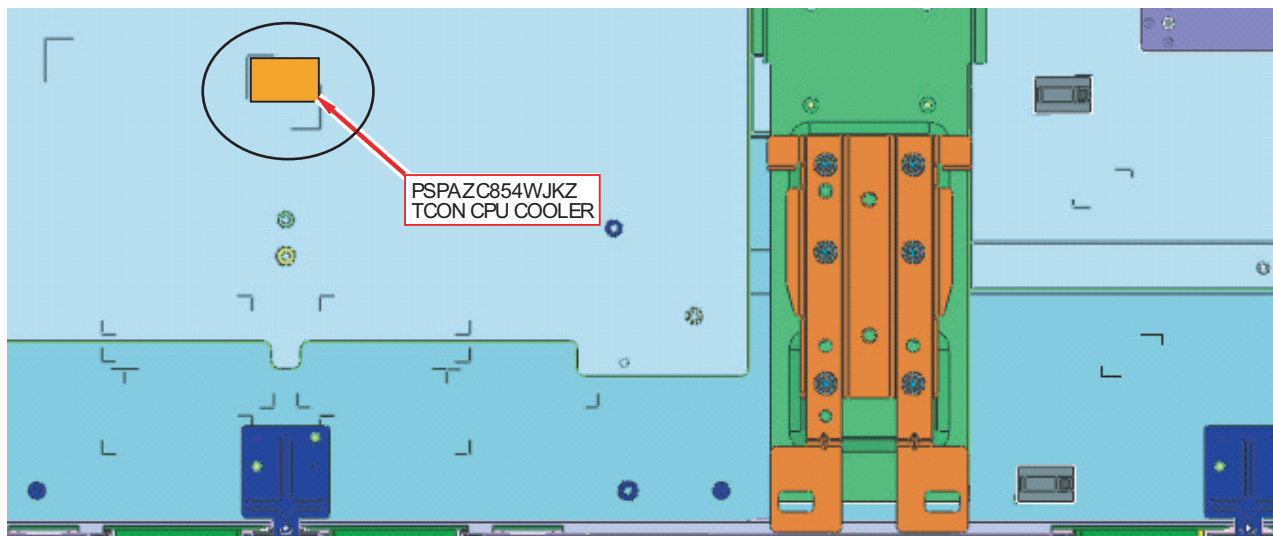
- LC-60LE640U/C6400U



- LC-70LE640U/6400U



2. LCD Control Unit (LC-60LE640U/C6400U)



[5] Precautions for assembly

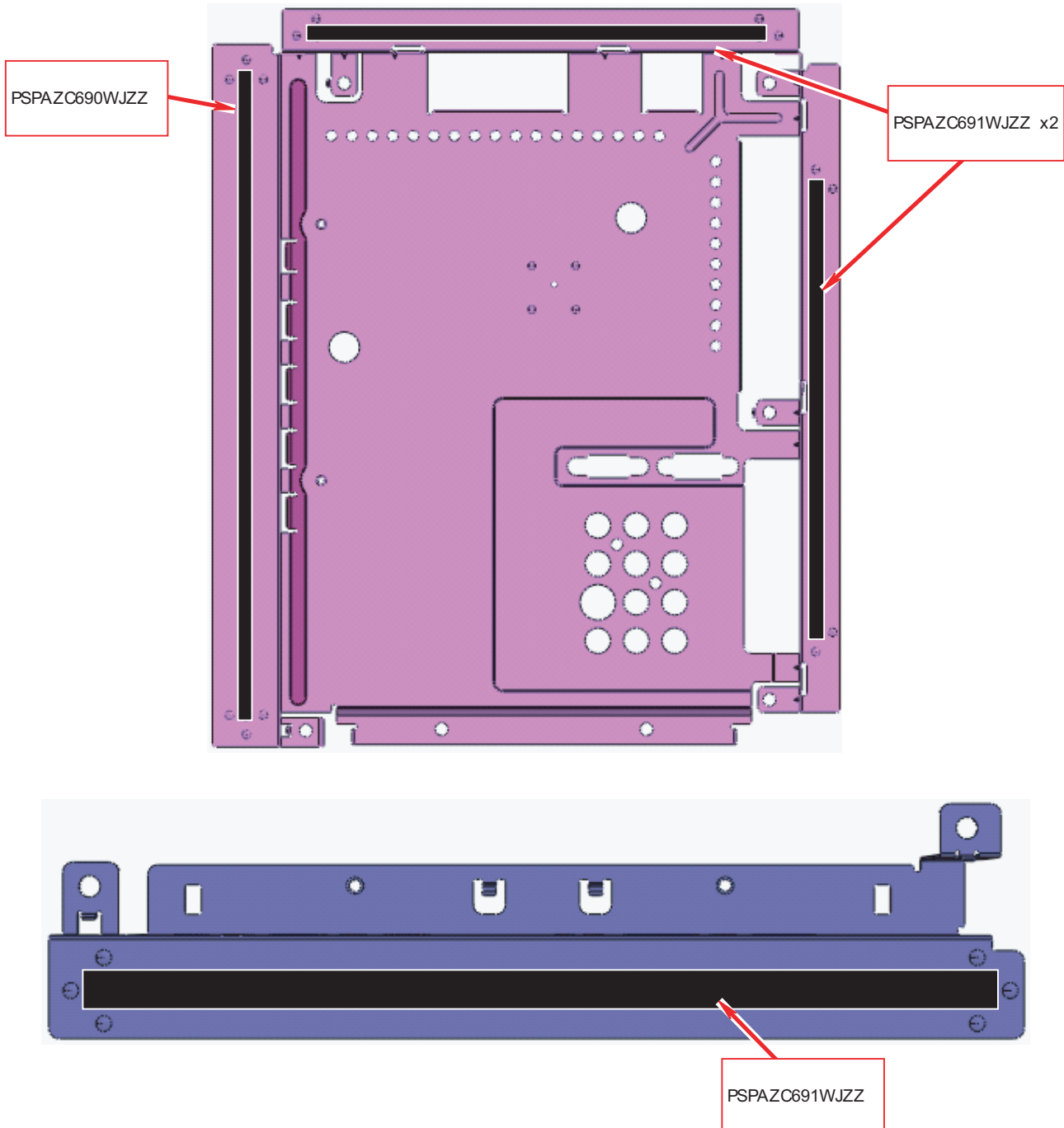
1. Points to be checked and precautions when servicing the unit

Mount the main PWB Ass'y on the backlight chassis and check that the EMI-prevention parts are not peeled and twisted from the access holes. (The EMI-prevention parts, conductive nonwoven fabric gaskets, must be seen from the access holes.)

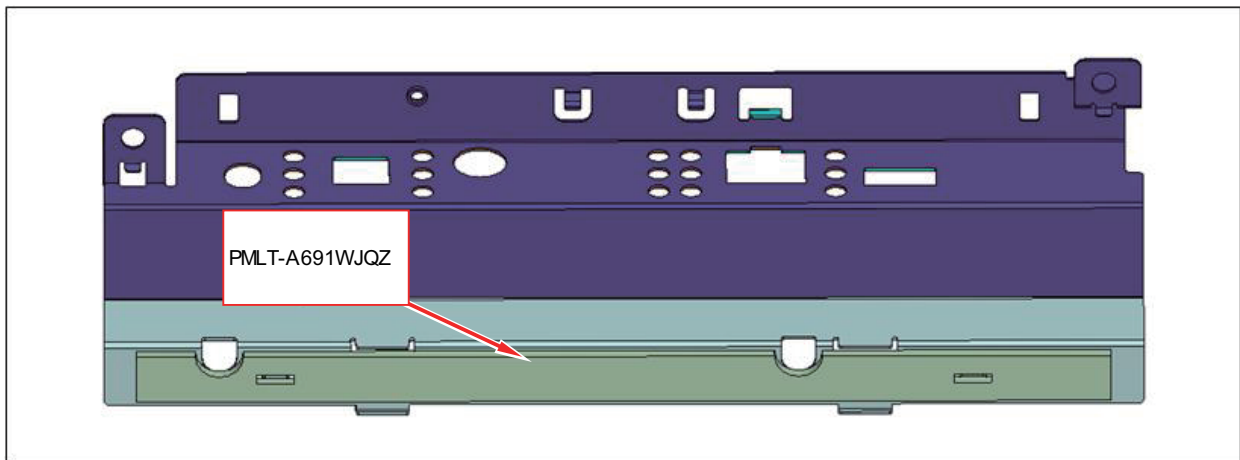
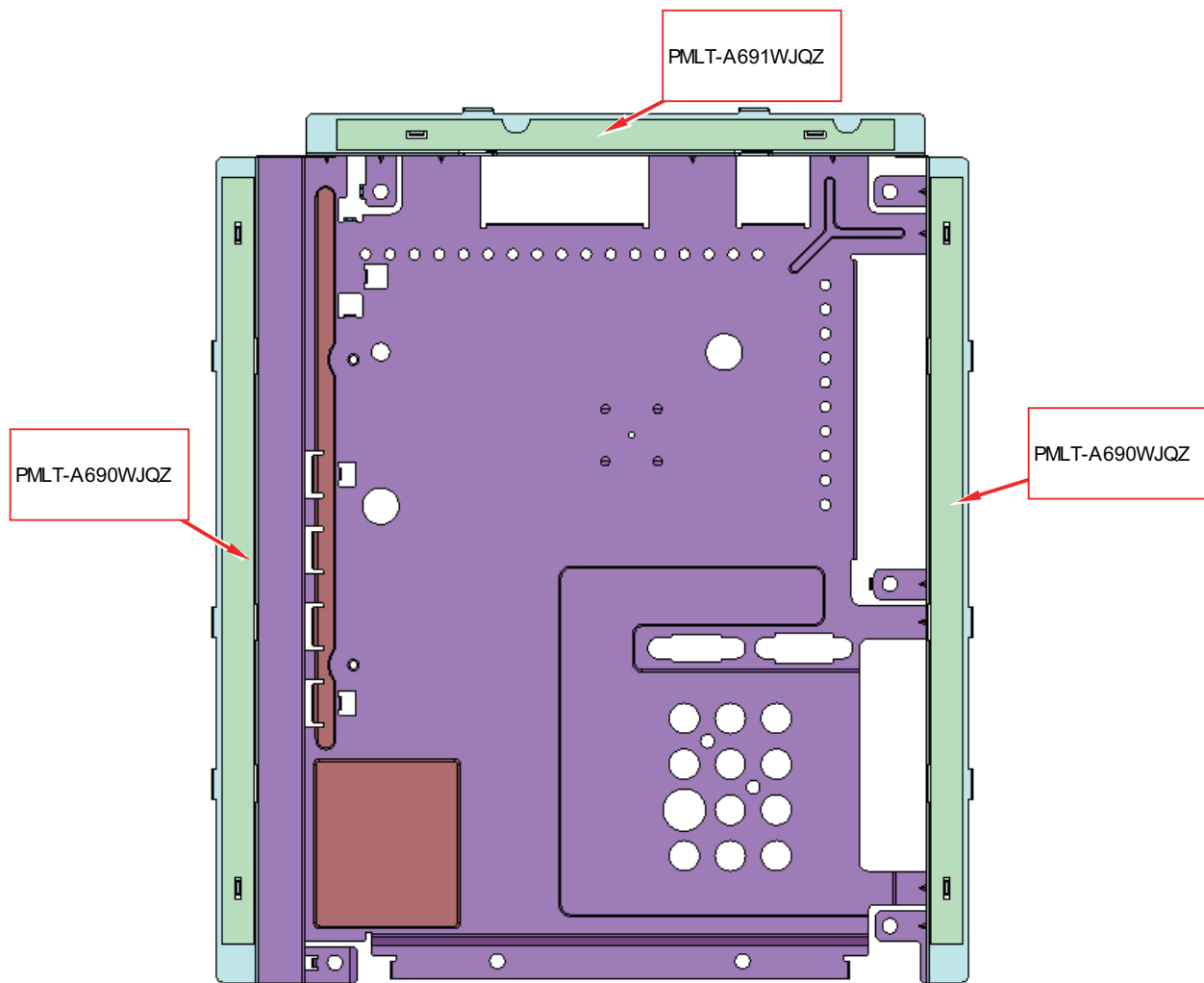
[Countermeasure]

Attach the conductive nonwoven fabric gaskets on the shielded case on the main PWB.

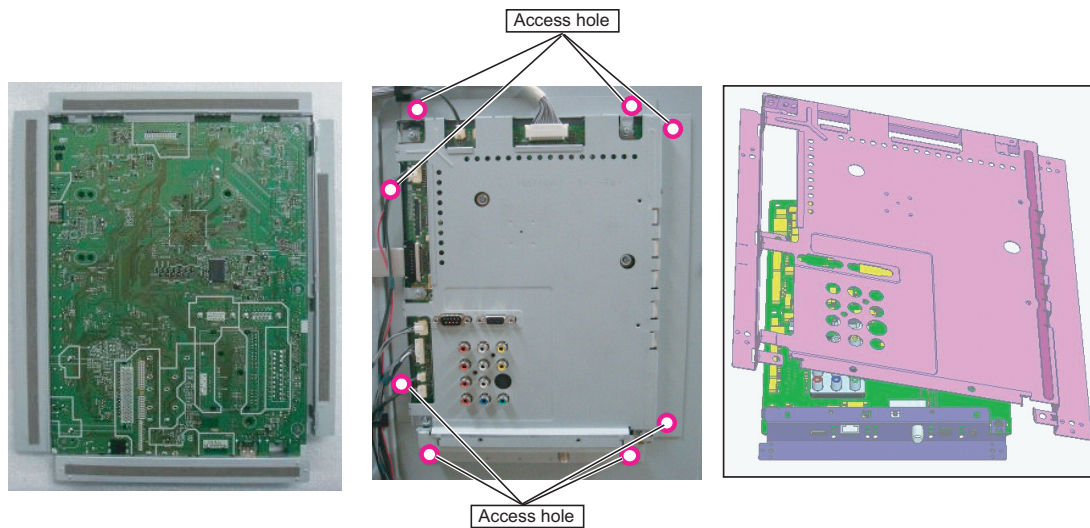
- LC-52/60LE640U,C6400U



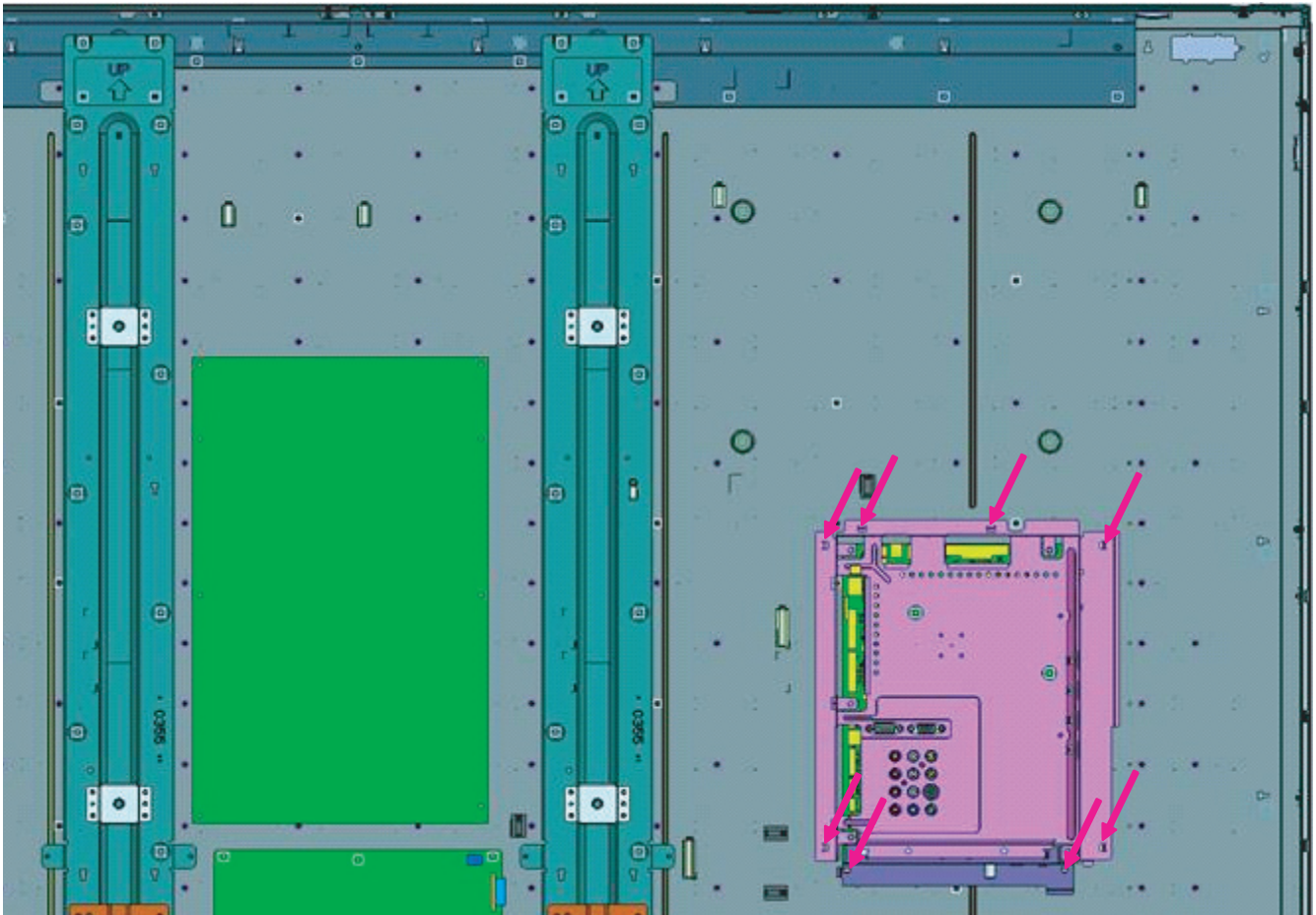
- LC-70LE640U/C6400U



State where the main PWB and shielded case are assembled



The following is a drawing mounting the main PWB Ass'y on the backlight chassis. (The parts indicated by -> are the access holes for confirmation.)
 (Main PWB Ass'y => State where the shielded case and RF terminal angle are mounted on the main PWB)



CHAPTER 5. ADJUSTMENT

[1] ADJUSTMENT PROCEDURE

The adjustment values are set to the optimum conditions at the factory before shipping. If a value should become improper or an adjustment is required due to part replacement, make an adjustment according to the following procedure.

1. After replacement of any PWB unit and/or IC for repair, please note the following.

- When replacing the following units, make sure to prepare the new units loaded with updated software.

MAIN Unit: DKEYMF733FM84 (LC-52LE640U/C6400U)

MAIN Unit: DKEYMF733FM83 (LC-60LE640U/C6400U)

MAIN Unit: DKEYMF733FM82 (LC-70LE640U/C6400U)

- When replacing the LCD control PWB, perform the VCOM adjustment.

2. Upgrading of each microprocessor software

CAUTION: Never "POWER OFF" the unit when software upgrade is ongoing.

Otherwise the system may be damaged beyond recovery.

2.1. Software version upgrade

The model employs the following software.

- Main software (please use a software version after BSMK_LE640_xxx.USB).
- Monitor microprocessor software (please use a software version after BM2SDMxxx.SMB.)

The main software, monitor microprocessor software can be upgraded by using a general-purpose USB Memory.

The followings are the procedures for upgrading, explained separately for the main software, monitor microprocessor software.

2.2. Main software version upgrade

2.2.1 Get ready before you start

- USB Memory of 128MB or higher capacity.
- PC running on Windows 98/98SE/ME/2000/XP operating system.
- USB Memory reader/writer or PC with a USB port.
- The file system of a USB memory is FAT. (FAT32 supports)
- Use the USB memory without other functions. (lock and memory reader...etc)

2.2.2 Preparations

To upgrade the main software, it is necessary to get ready the USB Memory for version upgrade before you start.

Follow the steps below and create the USB Memory for version upgrade.

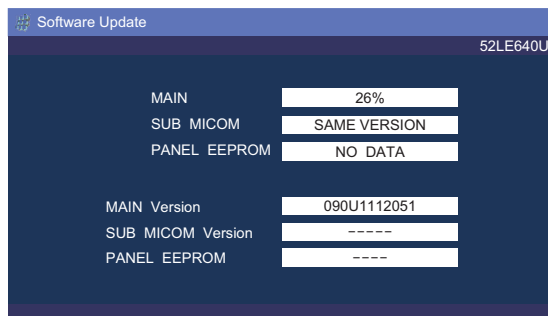
1. Copy the file BSMK_LE640_xxx.USB for version upgrade to the root directory (folder) of the USB Memory.

NOTE: In the USB Memory drive, do not store other folders or unrelated files, or more than one file for version upgrade.

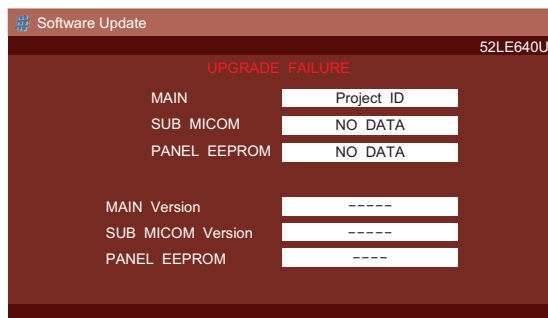
Now the USB Memory for version upgrade is ready.

2.2.3 How to upgrade the software

1. Unplug the AC cord.
2. Insert the USB Memory for version upgrade into the service socket.
3. Plug in the AC cord with power button pressed down.
4. After 5 seconds, unpress the power button.
5. After the unit startup, the system upgrade screen as shown below within 20-40 seconds.

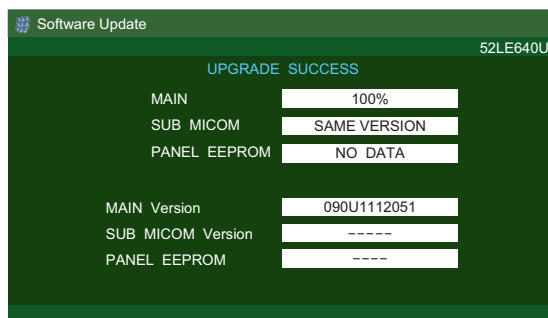


6. Even a single failure in the process will trigger the upgrade failure screen.



NOTE: In the event of a failure, repeat the upgrade process. If the process repeatedly fails, it is likely that the hardware need fixing.

7. Upon completion of the whole process, the upgrade success screen as shown below appears. You can check the new software version on this screen. The version information appears after the upgrade is complete.



8. Unplug the AC cord and remove the USB Memory for version upgrade.
9. Now the software version upgrade is complete.

NOTE: When you are done with the software version upgrade, start the set, go to the top page of the adjustment process screen and check the main software version information.

2.3. Monitor microprocessor software version upgrade

Create the USB memory for monitor microprocessor software version upgrade in the same manner as explained in the "Main software version upgrade".

Copy the file BSMK_LE640_xxx.USB and BM2SMxxx.SMB. (named temporarily) for monitor microprocessor software version upgrade to the USB memory.

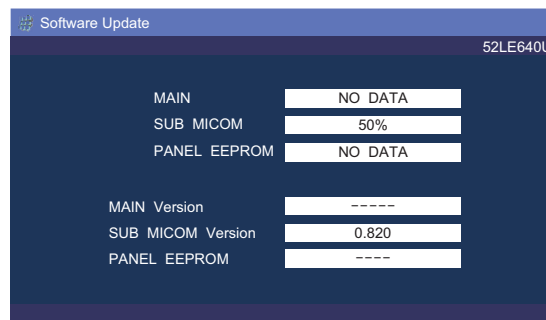
2.3.1 How to upgrade the software

1. Unplug the AC cord.
2. Insert the USB Memory for version upgrade into the service socket.
3. Plug in the AC cord with power button pressed down.
4. After 5 seconds, unpress the power button.

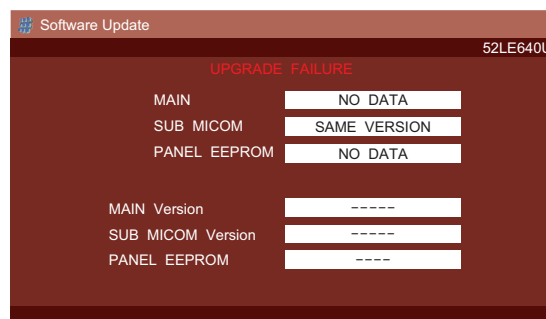
CAUTION: • The moment this operation is done, the upgrading of the monitor microprocessor software starts. While the upgrade is ongoing, never power off the unit. Otherwise the upgrade will fail and the system may be serious damaged beyond recovery (inability to start).

- After the monitor microprocessor software is upgraded, also perform the 'Industry Init'.

5. After the unit startup, the upgrade starts. The power led will blink continuously. Also, an upgrade screen will be shown during a minor upgrade.

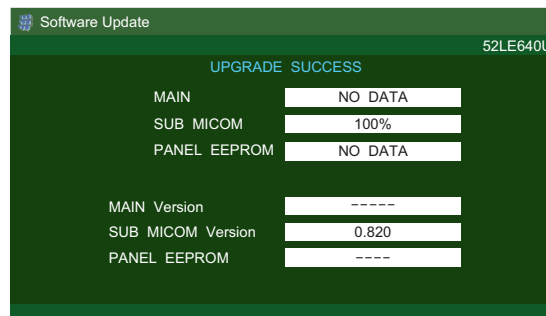


6. If the upgrade fails, power led will stop blinking. Also, the upgrade failure screen will be shown if upgrade screen was shown at 5.



NOTE: In the event of a transient failure, upgrade will be automatically retried up to three times. If the process repeatedly fails, hardware may be the cause.

7. The upgrade success screen will be shown if upgrade screen was shown at 5.



8. Unplug the AC cord and remove the USB Memory for version upgrade.
9. Now the software version upgrade is complete.

NOTE: When you are done with the software version upgrade, start the set, go to the top page of the adjustment process screen and check the monitor microprocessor software version information and panel size information.

3. Entering and exiting the adjustment process mode

- Before entering the adjustment process mode, the AV position RESET in the video adjustment menu.
 - While holding down the "VOL (-)" and "INPUT" keys at a time, plug in the AC cord of the main unit to turn on the power.
The letter "<K>" appears on the screen.
 - Next, hold down the "VOL (-)" and "CH ()" keys at a time.
(The "VOL (-)" and "CH ()" keys should be pressed and held until the display appears.)
Multiple lines of blue characters appearing on the display indicate that the unit is now in the adjustment process mode.
When you fail to enter the adjustment process mode (the display is the same as normal startup), retry the procedure.
 - To exit the adjustment process mode after the adjustment is done, unplug the AC cord from the outlet to make a forced shutdown. (When the power was turned off with the remote controller, once unplug the AC cord and plug it again. In this case, wait 10 seconds or so before plugging.)
- CAUTION: Use due care in handling the information described here lest your users should know how to enter the adjustment process mode. If the settings are tampered in this mode, unrecoverable system damage may result.

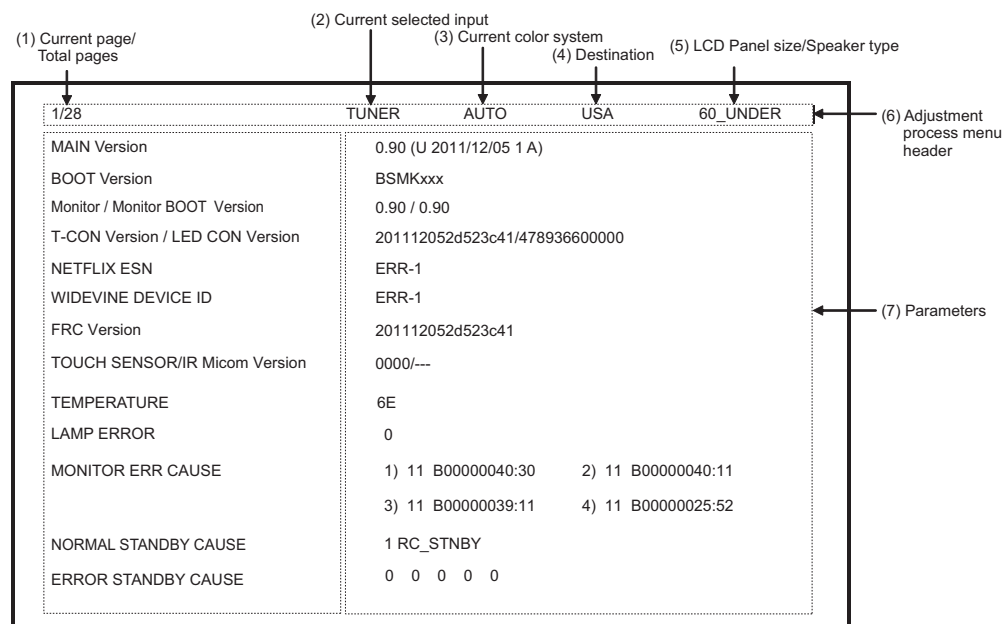
4. Remote controller key operation and description of display in adjustment process mode

- Key operation

Remote controller key	Main unit key	Function
CH ( / )	CH ( / )	Moving an item (line) by one (UP/DOWN)
VOL (+/-)	VOL (+/-)	Changing a selected item setting (+1/-1)
Cursor (UP/DOWN)	_____	Turing a page (PREVIOUS/NEXT)
Cursor (LEFT/RIGHT)	_____	Changing a selected line setting (+10/-10)
INPUT	_____	Input switching (toggle switching)
ENTER	_____	Executing a function

*Input mode is switched automatically when relevant adjustment is started so far as the necessary input signal is available.

- Description of display



5. List of adjustment process mode menu

The character string in brackets [] will appear as a page title in the adjustment process menu header.

Page	Line	Item	Description	Remarks (adjustment detail, etc.)
1	1	MAIN Version	Main software version	Refer to *1 under the list for details Refer to *2 under the list for details
	2	BOOT Version		
	3	Monitor / Monitor BOOT Version	Monitor and monitor boot software version	
	4	T-CON Version / LED CON Version	LCD controller software version	
	5	NETFLIX ESN		
	6	WIDEVINE DEVICE ID		
	7	FRC Version		
	8	TOUCH SENSOR/IR Micom Version		
	9	TEMPERATURE	Panel temperature	
	10	LAMP ERROR	Number of termination due to lamp error	
	11	MONITOR ERR CAUSE		
	12	NORMAL STANDBY CAUSE		
	13	ERROR STANDBY CAUSE		
2	1	INDUSTRY INIT	Initialization to factory settings	Level appears in green on the upper right
	2	INDUSTRY INIT(-Public)		
	3	PUBLIC MODE	Public mode	
	4	Center Acutime	Accumulated main operation time	
	5	RESET	Reset	
	6	Backlight Acutime	Accumulated monitor operation time	
	7	RESET	Reset	
	8	LAMP ERROR RESET	Reset LAMP ERROR	
	9	VIC XPOS	X-coordinate setting for VIC READ	
	10	VIC YPOS	Y-coordinate setting for VIC READ	
	11	VIC COLOR	Collected color data setting for VIC READ	
	12	VIC SIGNAL TYPE	Signal type setting for VIC READ	
	13	VIC READ	Picture level acquisition function	
3	1	N358 ALL ADJ(INPUT2)	CVBS and TUNER signal level adjustment	
	2	N358 MAIN ADJ(INPUT2)	CVBS signal level adjustment	
	3	TUNER DAC ADJ	TUNER signal level adjustment	
	4	N358 CONTRAST A_GAIN		
	5	N358 CONTRAST D_GAIN		
	6	N358 CONTRAST OFFSET		
	7	TUNER CONTRAST A_GAIN		
	8	TUNER CONTRAST D_GAIN		
	9	TUNER CONTRAST OFFSET		
4	1	TUNER VCHIP TEST(69ch)	Tuning test and VCHIP test (69ch)	
	2	TUNER VCHIP TEST(7ch)	Tuning test and VCHIP test (7ch)	
	3	TUNER VCHIP TEST(10ch)	Tuning test and VCHIP test (10ch)	
	4	TUNER VCHIP TEST(15ch)	Tuning test and VCHIP test (15ch)	
	5	INSPECT USB TERM		
	6	HDMI EDID WRITE		
	7	HDMI CEC TEST		
5	1	COMP15K ADJ(INPUT1)	Component 15K picture level adjustment (main)	
	2	COMP15K Y A_GAIN		
	3	COMP15K Cb A_GAIN		
	4	COMP15K Cr A_GAIN		
	5	COMP15K Y OFFSET		
	6	COMP15K Cb OFFSET		
	7	COMP15K Cr OFFSET		
	8	COMP15K A_CLAMP		
6	1	COMP33K ADJ(INPUT1)	Component 33K picture level adjustment (main)	
	2	COMP33K Y A_GAIN		
	3	COMP33K Cb A_GAIN		
	4	COMP33K Cr A_GAIN		
	5	COMP33K Y OFFSET		
	6	COMP33K Cb OFFSET		
	7	COMP33K Cr OFFSET		
	8	COMP33K A_CLAMP		

Page	Line	Item	Description	Remarks (adjustment detail, etc.)
7	1	ANALOG RGB ADJ	Analog RGB picture level adjustment	
	2	R A_GAIN		
	3	G A_GAIN		
	4	B A_GAIN		
	5	R OFFSET		
	6	G OFFSET		
	7	B OFFSET		
	8	RGB_A_CLAMP		
8	1	VCOM ADJ	VCOM adjustment value	
9	1	LEV1	Standard value 1	Adjustment gradation setting.
	2	LEV2	Standard value 2	
	3	LEV3	Standard value 3	
	4	LEV4	Standard value 4	
	5	LEV5	Standard value 5	
	6	LEV6	Standard value 6	
10	1	MG1R	WB adjustment Point 1, R adjustment value	Parameter for six-point adjustment
	2	MG1G	WB adjustment Point 1, G adjustment value	
	3	MG1B	WB adjustment Point 1, B adjustment value	
	4	MG2R	WB adjustment Point 2, R adjustment value	
	5	MG2G	WB adjustment Point 2, G adjustment value	
	6	MG2B	WB adjustment Point 2, B adjustment value	
	7	MG3R	WB adjustment Point 3, R adjustment value	
	8	MG3G	WB adjustment Point 3, G adjustment value	
	9	MG3B	WB adjustment Point 3, B adjustment value	
11	1	MG4R	WB adjustment Point 4, R adjustment value	Parameter for six-point adjustment
	2	MG4G	WB adjustment Point 4, G adjustment value	
	3	MG4B	WB adjustment Point 4, B adjustment value	
	4	MG5R	WB adjustment Point 5, R adjustment value	
	5	MG5G	WB adjustment Point 5, G adjustment value	
	6	MG5B	WB adjustment Point 5, B adjustment value	
	7	MG6R	WB adjustment Point 6, R adjustment value	
	8	MG6G	WB adjustment Point 6, G adjustment value	
	9	MG6B	WB adjustment Point 6, B adjustment value	
12	1	LO R 1		
	2	LO G 1		
	3	LO B 1		
	4	LO Y 1		
	5	LO R 2		
	6	LO G 2		
	7	LO B 2		
	8	LO Y 2		
	9	LO R 3		
	10	LO G 3		
	11	LO B 3		
	12	LO Y 3		
13	1	LO R 4		
	2	LO G 4		
	3	LO B 4		
	4	LO Y 4		
	5	LO R 5		
	6	LO G 5		
	7	LO B 5		
	8	LO Y 5		
	9	LO R 6		
	10	LO G 6		
	11	LO B 6		
	12	LO Y 6		
	13	CTEMP SELECT		

Page	Line	Item	Description	Remarks (adjustment detail, etc.)
14	1	MODE SELECT		
	2	POS SELECT		
	3	POS MIN		
	4	POS MID1		
	5	POS MID2		
	6	POS MID3		
	7	POS MID4		
	8	POS MID5		
	9	POS MID6		
	10	POS MAX		
15	1	CD MIN		
	2	CD MID1		
	3	CD MID2		
	4	CD MID3		
	5	CD MID4		
	6	CD MID5		
	7	CD MID6		
	8	CD MAX		
16	1	CALC		
	2	RESET		
	3	VAL1		
	4	VAL2		
	5	VAL3		
	6	VAL4		
	7	VAL5		
	8	VAL6		
	9	GAMMA ADJ TEMP		
17	1	MONITOR TIME OUT		
	2	MONITOR MAX TEMP		
	3	MONITOR ERROR CAUSE RESET		
18	1	LCD TEST PATTERN		
	2	LCD TEST PATTERN1		
	3	LCD TEST PATTERN2		
	4	LCD TEST PATTERN3		
	5	LCD TEST PATTERN4		
	6	TV TEST PATTERN 1		
	7	TV TEST PATTERN 2		
19	1	T-CON VERSION EXT.1	PRIMROSE 2D Version	
	2	T-CON VERSION EXT.2	PRIMROSE 3D Version	
	3	T-CON VERSION EXT.3	Blank (Not Use)	
	4	T-CON VERSION EXT.4	Blank (Not Use)	
20	1	READ/WRITE		
	2	SLAVE ADDRESS		
	3	RESISTER ADDRESS UPPER		
	4	RESISTER ADDRESS LOWER		
	5	WRITE DATA UPPER		
	6	WRITE DATA LOWER		
	7	READ DATA UPPER		
	8	READ DATA LOWER		
21	1	POWER LED BRIGHTNESS		
	2	MENU LED BRIGHTNESS		
	3	INPUT LED BRIGHTNESS		
	4	CH UP LED BRIGHTNESS		
	5	CH DOWN LED BRIGHTNESS		
	6	VOL UP LED BRIGHTNESS		
	7	VOL DOWN LED BRIGHTNESS		
	8	LOGO LED BRIGHTNESS		
	9	ICON LED BRIGHTNESS		
	10	ICON LED BRIGHTNESS (STANDBY)		
	11	3D LED BRIGHTNESS		

Page	Line	Item	Description	Remarks (adjustment detail, etc.)
22	1	POWER KEY SENSITIVITY		
	2	MENU KEY SENSITIVITY		
	3	INPUT KEY SENSITIVITY		
	4	CH UP KEY SENSITIVITY		
	5	CH DOWN KEY SENSITIVITY		
	6	VOL UP KEY SENSITIVITY		
	7	VOL DOWN KEY SENSITIVITY		
23	1	KEY STRENGTH GET MODE		
	2	POWER KEY STRENGTH		
	3	MENU KEY STRENGTH		
	4	INPUT KEY STRENGTH		
	5	CH UP KEY STRENGTH		
	6	CH DOWN KEY STRENGTH		
	7	VOL UP KEY STRENGTH		
	8	VOL DOWN KEY STRENGTH		
24	1	CROSSTALK ADJ MODE		
	2	CROSSTALK TH1		
	3	CROSSTALK TH2		
	4	CROSSTALK TH3		
	5	CROSSTALK TH4		
	6	CROSSTALK GAIN1		
	7	CROSSTALK GAIN2		
	8	CROSSTALK GAIN3		
25	1	WIFI SSID 2.4GHz	Set AP SSID	
	2	WIFI SSID 5GHz	Set AP SSID	
	3	WIFI RSSI 2.4GHz	Set RSSI threshold	
	4	WIFI RSSI 5GHz	Set RSSI threshold	
	5	WIFI TIME 2.4GHz	Set Time Out	
	6	WIFI TIME 5GHz	Set Time Out	
	7	WIFI RSSI TEST	Execute test	
	8	WIFI RSSI RESULT	Display test result	
26	1	KEY LOCK (1217)		
	2	KOUTEI AREA ALL CLEAR		
	3	A MODE AREA CLEAR		
	4	BACKUP AREA CLEAR		
	5	B MODE AREA CLEAR		
	6	EXECUTION		
27	1	ERROR STANDBY CAUSE1		
	2	ERROR STANDBY CAUSE2		
	3	ERROR STANDBY CAUSE3		
	4	ERROR STANDBY CAUSE4		
	5	ERROR STANDBY CAUSE5		
	6	ERROR STANDBY CAUSE RESET		
28	1	EEP SAVE	Writing setting values to EEPROM Reading setting values from EEPROM	
	2	EEP RECOVER		
	3	MODEL NAME		
	4	PANEL SIZE		
	5	SETTING FOR ADJ		
	6	VERUP FLAG ENABLE		
	7	SHARP RC ENABLE		
	8	PANEL LIMIT		
	9	PANEL RANGE LIMIT		
	10	SHORT CHECK MODE		
	11	SHORT CHECK CURRENT		
	12	CURRENT SW		
	13	TEST NETWORK UPDATE		

***1 Details of P1.12 (NORMAL STANDBY CAUSE)**

When TV set is powered off due to normal use or product specification, the last cause will be recorded.

The code, character string and description for the standby cause are below.

If you power off by remote, the cause will not be recorded.

Code	Character string	Description
2	NO_OPERT	No operation off
3	NO_SIGNA	No signal off
6	SLEEP_TM	Off timer
8	OFF_232C	Command from RS232C

***2 Details of P1.13 (ERROR STANDBY CAUSE)**

When TV set is powered off due to any anomaly detection, the past 5 causes will be recorded.

You can confirm the time those causes occurred and character string in the adjustment process mode menu. (Page 27/28)

The time is accumulated total after TV set is powered on, and the value corresponds to "Center Acutime" in the adjustment process mode menu.

The code, character string and description for the standby cause are below.

If no error has occurred, the code is 0 and the character string is "NO RECORD".

Code	Character string	Description
1A	E_MONITR	Monitor trouble detected
1B	E_CVICBT	Driver boot error
22	E_TCNERR	Software abnormality of LCD controller
48	E_MRESET	Failure of resetting menu settings (Initial Setup - Reset)
50	E_TCNF_S	T-CON FPGA status error
54	E_TCON_E	T-CON hung-up

Monitor ERR STBY table

Outline: Communication/Power failure detected by the monitor microcomputer is stored in EEPROM, and last 4 abnormal can be confirmed in the Process mode A.

Location: Page 1 of the process mode A: MONITOR ERR CAUSE. "0" if there is no error. It is cleared to 0 on the last page of the process mode A.

Display	Error description	
02	Initial communication from the main CPU is not received.	Check UART bus between main CPU and sub CPU.
03	Only the initial communication is received.	
04	Until panel information request reception	
05	Until initialization completion reception	
06	Until version notification transmission	
07	Until start-up information notification transmission	
08	Until start-up information response reception	
09	Until time-out setting reception	
0A	Request time-out	
0B	Restart time-out during the beginning of time acquisition start-up	
0C	Ending sequence time-out	
0D	Preset start-up time-out during completion	
0E	Download, start-up time-out	
0F	Time acquisition time-out	
11	Regular communication time-out	
16	Backlight error	
1A	Monitor temperature failure	See p.6-5 - Check TV setting environment - Check the other monitor (ref No.)
1E	DET_13V failure	
1F	DET_D3V3 failure	Check 13V power line.
20	ERROR_3D (3D-PWB) failure	Check D3V3 power line.
21	DET_PNLxxV failure	Check 3D-PWB
23	Error standby request from the main CPU	Check T-CON power line
		Check ERROR STANDBY CAUSE (p.5-8)

6. Special features

* STANDBY CAUSE (Page 1/28)

Display of a cause (code) of the last standby

The cause of the last standby is recorded in EEPROM whenever possible.

Checking this code will be useful in finding a problem when you repair the troubled set.

* EEP SAVE (Page 28/28)

Storage of EEP adjustment value

* EEP RECOVER (Page 28/28)

Retrieval of EEP adjustment value from storage area

7. Writing the microprocessor software

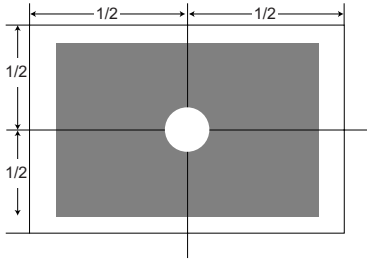
7.1. Writing the main microprocessor software and monitor microprocessor software

(Main PWB: QPWBXF733WJN2)

	Adjustment item	Adjustment conditions	Adjustment procedure
1	Writing the main microprocessor software and monitor microprocessor software <Main PWB>	Checker process Checking the file version Checking the USB memory	1) Using the checker, connect the specified writing tool to the SC8452 (TL8461 - TL8475). 2) Using the checker, connect the USB memory to the J9502 (TL9503, TL9506 - 9508). 3) Apply the specified voltage to the PWB and boot it up with the tool connected. 4) Send the software writing start command via RS232C. 5) Send the writing status check command and confirm the response of OK. Then turn off the power. CAUTION: When the USB memory is not inserted or reading error occurs, nothing is written.

8. Signal adjustment

8.1. LCD section adjustment [LCD module adjustment]

	Adjustment item	Adjustment conditions	Adjustment procedure
1	Opposite bias adjustment (LCD module adjustment item)	Adjustment in the center position of the panel	1) Enter the process mode using the process adjustment remote control. 2) Select [VCOM ADJ] using the Channel $\wedge/\vee$ keys on the remote control. 3) Press the Enter key to check that the pattern for adjustment is displayed. 4) Make adjustment so that the flicker located in the center of the screen is minimized using the Volume +/- keys on the remote control. 5) If the optimum condition is obtained in step 4, press the Enter key to turn off the pattern. CAUTION: * Make adjustment with no ANT signal (since the brightness is changed by the active backlight). [Adjustment position] 

8.2. Image adjustment

8.2.1 Device check

■ Before adjustment, check that the adjustment jig and signal source are set for Sharp LCD US.

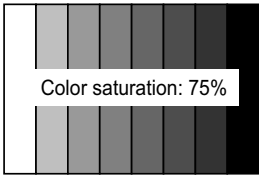
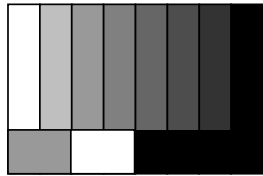
■ Signal generator level adjustment check (Adjust to the standard value level.)

- Composite signal: 0.714Vp-p $\pm$ 0.02Vp-p (Pedestal to white)
- 15K component signal: Y level: 0.714Vp-p $\pm$ 0.02Vp-p (Pedestal to white)
PB/PR level: 0.7Vp-p $\pm$ 0.02Vp-p
- 33K component signal: Y level: 0.7Vp-p $\pm$ 0.02Vp-p (Pedestal to white)
PB/PR level: 0.7Vp-p $\pm$ 0.02Vp-p
- Analog RGB: RGB level: 0.7Vp-p $\pm$ 0.02Vp-p (Pedestal to white)

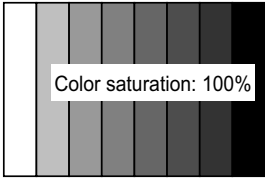
8.2.2 Process mode

Adjustment point	Adjustment conditions	Adjustment procedure
Process mode		Enter the process adjustment mode using the process adjustment remote control.

8.2.3 Composite N358 signal/tuner adjustment

Adjustment point	Adjustment conditions	Adjustment procedure
1 Setting	N358 signal US-10ch	- Send the N358 color bar (color saturation: 75%) signal to the composite input. - Send the in-house signal (use US-10ch) to TUNER. [Video input signal]  ↑ 100% white ↑ 0% black [In-house US-10ch]  ↑ 100% white
2 Automatic adjustment execution		Point the cursor to [■N358 ALL ADJ(INPUT2)] and press the [Enter] key. The adjustment is complete when [■N358 ALL ADJ(INPUT2) OK] is displayed.

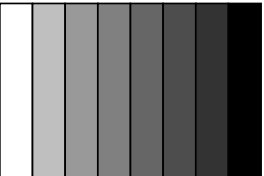
8.2.4 Component 15K signal adjustment

Adjustment point	Adjustment conditions	Adjustment procedure
1 Setting	480i signal	Send the 100% color bar signal to the component input.  ↑ 100% white ↑ 0% black 480i 100% color bar
2 Automatic adjustment execution		Point the cursor to [■COMP15K ADJ(INPUT1)] and press the [Enter] key. The adjustment is complete when [■COMP15K ADJ(INPUT1) OK] is displayed.

8.2.5 Component 33K signal adjustment

	Adjustment point	Adjustment conditions	Adjustment procedure
1	Setting	1080i signal	Send the 100% color bar signal to the component input.  1080i 100% color bar
2	Automatic adjustment execution		Point the cursor to [■COMP33K ADJ(INPUT1)] and press the [Enter] key. The adjustment is complete when [■COMP33K ADJ(INPUT1) OK] is displayed.

8.2.6 Analog RGB signal adjustment

	Adjustment point	Adjustment conditions	Adjustment procedure
1	Setting	Signal: XGA (1024x768) 60Hz SYNC: HV separate	Send the 100% color bar signal to the PC input.  XGA (1024x768) 100% color bar
2	Automatic adjustment execution		Point the cursor to [■ANALOG RGB ADJ] and press the [Enter] key. The adjustment is complete when [■ANALOG RGB ADJ OK] is displayed.

8.2.7 Tuner/V-CHIP adjustment

	Adjustment point	Adjustment conditions	Adjustment procedure
1	Setting	NTSC RF signal US-7(AIR)ch	Send the NTSC signal to the RF antenna input.
2	Automatic adjustment execution		Point the cursor to [■VCHIP TEST(*07ch)] and press the [Enter] key. (* Adjust the selected channel to the in-house signal.) The adjustment is OK when [■VM-OK] is displayed in green. (NG when VM-NG is displayed in red.)

9. White balance adjustment

9.1. White balance adjustment (For details about the adjustment procedure, refer to “Kameyama Model Integrated Monitor WB Adjustment Specification V1.92”.)

	Adjustment point	Adjustment conditions	Adjustment procedure																																														
1	Setting		1) Set the unit to the following conditions. AV MODE: [DYNAMIC] Backlight: +16 Active Backlight: OFF Aging Time: Min. 60 minutes 2) Connect the unit with the white balance adjustment jig.																																														
2	Automatic adjustment execution	[Command] Process mode KRSW0001 KKT10037 Setting KY0F0000 0SDS0001 SBSL0016 Multi-point adjustment mode MSET0001 Point 6 LEV60232 MG6G**** MG6B**** MG6R**** Point 5 LEV50202 MG5G**** MG5B**** MG5R**** Point 4 LEV40174 MG4G**** MG4B**** MG4R**** Point 3 LEV30120 MG3G**** MG3B**** MG3R**** Point 2 LEV20059 MG2G**** MG2B**** MG2R**** Point 1 LEV10046 MG1G**** MG1B**** MG1R**** Writing MSET0003	[Adjustment procedure] 1) Send the “adjustment process” code using the remote control. 2) Set the point 6 to the specified gradation, specify the strongest color as the fixed color, and adjust the RGB so that it becomes the standard value through negative adjustment. 3) Set the point 5 to the specified gradation, set the G correction value (808 x G value of point 6/928) (fractions rounded off) and adjust the RB so that it becomes the standard value. 4) Set the point 4 to the specified gradation, set the G correction value (696 x G value of point 6/928) (fractions rounded off) and adjust the RB so that it becomes the standard value. 5) Set the point 3 to the specified gradation, set the G correction value (480 x G value of point 6/928) (fractions rounded off) and adjust the RB so that it becomes the standard value. 6) Set the point 2 to the specified gradation, set the G correction value (236 x G value of point 6/928) (fractions rounded off) and adjust the RB so that it becomes the standard value. 7) Set the point 1 to the specified gradation, set the G correction value (184 x G value of point 6/928) (fractions rounded off) and adjust the RB so that it becomes the standard value. 8) Write the adjustment value by the MSET0003 command and turn off the AC power. * RGB initial value of point 6: Set gradation 928 * RGB initial value of points 1 to 5: G correction value of each point (At each point, make adjustment so that the remainder of the RGB adjustment value/ 4 is equal.) [Adjustment value] * According to the “Standard settings” submitted by the Technical Department [LC60LE632U] teaching set [Adjustment standard value] Measuring instrument: [Minolta CA-210] Technical measuring instrument <table><tr><th></th><th>Level</th><th>Reference value</th><th>Adjustment spec</th><th>Inspection spec</th></tr><tr><td rowspan="2">Point 6</td><td rowspan="2">928</td><td>X=0.272</td><td rowspan="2">±0.0010</td><td rowspan="2">±0.0020</td></tr><tr><td>y=0.277</td></tr><tr><td rowspan="2">Point 5</td><td rowspan="2">808</td><td>X=0.272</td><td rowspan="2">±0.0010</td><td rowspan="2">±0.0020</td></tr><tr><td>y=0.277</td></tr><tr><td rowspan="2">Point 4</td><td rowspan="2">696</td><td>X=0.272</td><td rowspan="2">±0.0015</td><td rowspan="2">±0.0030</td></tr><tr><td>y=0.277</td></tr><tr><td rowspan="2">Point 3</td><td rowspan="2">480</td><td>X=0.272</td><td rowspan="2">±0.0020</td><td rowspan="2">±0.0040</td></tr><tr><td>y=0.277</td></tr><tr><td rowspan="2">Point 2</td><td rowspan="2">236</td><td>X=0.272</td><td rowspan="2">±0.0030</td><td rowspan="2">±0.0060</td></tr><tr><td>y=0.277</td></tr><tr><td rowspan="2">Point 1</td><td rowspan="2">184</td><td>X=0.272</td><td rowspan="2">±0.004</td><td rowspan="2">±0.0080</td></tr><tr><td>y=0.277</td></tr><tr><td>Remarks</td><td></td><td colspan="3">Setting conditions for inspection AV MODE: [DYNAMIC] (Reset) Monochro: ON Active Backlight: OFF Aging Time: Min. 60 minutes</td></tr></table>		Level	Reference value	Adjustment spec	Inspection spec	Point 6	928	X=0.272	±0.0010	±0.0020	y=0.277	Point 5	808	X=0.272	±0.0010	±0.0020	y=0.277	Point 4	696	X=0.272	±0.0015	±0.0030	y=0.277	Point 3	480	X=0.272	±0.0020	±0.0040	y=0.277	Point 2	236	X=0.272	±0.0030	±0.0060	y=0.277	Point 1	184	X=0.272	±0.004	±0.0080	y=0.277	Remarks		Setting conditions for inspection AV MODE: [DYNAMIC] (Reset) Monochro: ON Active Backlight: OFF Aging Time: Min. 60 minutes		
	Level	Reference value	Adjustment spec	Inspection spec																																													
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Point 5	808	X=0.272	±0.0010	±0.0020																																													
		y=0.277																																															
Point 4	696	X=0.272	±0.0015	±0.0030																																													
		y=0.277																																															
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		y=0.277																																															
Point 2	236	X=0.272	±0.0030	±0.0060																																													
		y=0.277																																															
Point 1	184	X=0.272	±0.004	±0.0080																																													
		y=0.277																																															
Remarks		Setting conditions for inspection AV MODE: [DYNAMIC] (Reset) Monochro: ON Active Backlight: OFF Aging Time: Min. 60 minutes																																															

10. Key writing

10.1. EDID writing (Main PWB: QPWBXF733WJN2)

1. Write the MAC key data on IC8455 mounted on the main PWB.
2. Carry out thorough data management to avoid redundant writing of data.

If the IC where data is written is damaged, replace the PWB since only the IC cannot be changed.

10.2. MAC key writing (MAIN PWB: QPWBXF733WJN2)

1. Write the NETFLIX/WMDRM key data on IC8401 mounted on the main PWB.
2. Carry out thorough data management to avoid redundant writing of data.

If the IC where data is written is damaged, replace the PWB since only the IC cannot be changed.

10.3. NETFLIX/WMDRM key writing (MAIN PWB: QPWBXF733WJN2)

1. Write the wide vine key data on IC8401 mounted on the main PWB.
2. Carry out thorough data management to avoid redundant writing of data.

If the IC where data is written is damaged, replace the PWB since only the IC cannot be changed.

NOTE: For EDID of the analog RGB (DSUB 15pin), write the data on the process menu just like HDMI.

11. Factory setting

After completing the factory setting, pull out the AC cord to complete the setting.

CAUTION: Do not turn on the power after completing the factory setting. If the power is turned on, configure the factory setting again.

	Adjustment point	Adjustment conditions	Adjustment procedure
1	Factory setting	Complete the setting by pulling out the AC cord.	- Point the cursor to [INDUSTRY INIT (+Cause)], set to "ON" using [+] / [-] of the [VOL] key, and press the [ENT] key. The version confirmation screen appears on the green screen. It is completed when [SUCCESS] is displayed at the top. (If error occurs, [ERROR] is displayed on the red screen.) - Turn off the AC power. The following items are initialized when configuring the factory setting. 1) User set value 2) Channel data (broadcasting frequency, etc.) 3) Password setting value 4) Operating time 5) Standby Cause 6) Auto installation flag 7) V-CHIP block setting value

12. Software version

1. Main microcomputer
BSMK_LE640_xxx.USB
BSMK_LE640_xxx.DAT
2. Monitor microcomputer
BM2SMxxx.SMB

13. Writing the inch and model name onto EEPROM

LE640U/C6400U

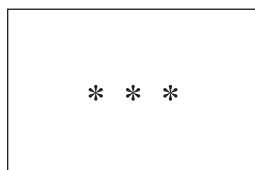
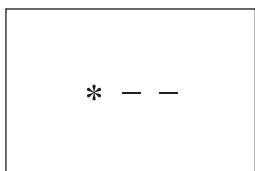
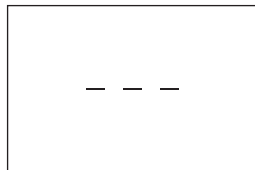
1. Enter the adjustment process mode.
2. Point the cursor to [MODEL NAME] (Page 28/28).
3. Select "LE640U" or "C6400U", and press [Enter] key.
4. "OK" is displayed.
5. Point the cursor to [PANEL SIZE] (Page 28/28).
6. Select "52" or "60" or "70", and press [Enter] key.
7. Moments later image is displayed.
8. Turn off power
9. Turn on power

[2] PUBLIC MODE SETTING PROCEDURE

1. How to start Public Mode

- There are the following two ways to get the public mode setup screen displayed.

- ① In the adjustment process mode, turn on "PUBLIC MODE". Also press the "CH (^)" and "VOL (+)" keys on the set at once and turn on the power.
- ② 1) Press the "INPUT" and "VOL (+)" keys on the set at once and turn on the power.
2) Get the password input screen displayed.



Procedure

- The input starts with the leftmost digit.
- Use the numeric keys [1] thru [9] and [0] keys on the remote controller.
The other keys are not acceptable.
- With a numeric-key input, "-" will change to "*".
The input position will move one digit to the right.
- With all the 3 digits entered, the password will be verified.

- 3) The 3-digit password is now verified.

The password [0] [2] [7] provides for the public mode screen. (This screen comes on with whatever adjustment process settings.)

With any other passwords, the screen changes to the normal mode.

2. How to exit Public Mode

There are the following ways to quit the public mode setup screen.

- Turn off "PUBLIC MODE" in the adjustment process mode. (☆) ← This way alone is not for quitting the setup screen, but for quitting the mode itself.
 - Turn off the power with the "POWER" key. (★)
 - Select "EXECUTE". (★)
- ★ ... "PUBLIC MODE" stays on in the adjustment process mode.
- ☆ ... The settings will be back to the factory ones.

3. Public Mode Setting Values

- With the factory settings made, the public mode settings get initialized. (The adjustment process remains intact.)

4. Public Mode Menu

The guidance is not displayed on screen.

Setup procedure

- To move the cursor up and down, use the “cursor UP/DOWN” key (remote controller) and “CH ()/()” key (remote controller and set).
- To change the settings, use the “cursor RIGHT/LEFT” key (remote controller) and “VOL (+)/(-)” key (remote controller and set).
- To save new settings, keep the cursor at “EXECUTE” and use “ENTER” key (remote controller and set).

PUBLIC MODE	
POWER ON FIXED	[VARIABLE]
MAXIMUM VOLUME	[60]
VOLUME FIXED	[VARIABLE]
VOLUME FIXED LEVEL	[20]
RC BUTTON	[RESPOND]
PANEL BUTTON	[RESPOND]
MENU BUTTON	[RESPOND]
AV POSITION FIXED	[VARIABLE]
ON SCREEN DISPLAY	[YES]
INPUT MODE START	[NORMAL]
INPUT MODE FIXED	[VARIABLE]
LOUD SPEAKER	[ON]
RC_PATH_THROUGH	[OFF]
232C POWON	[DISABLE]
PUBLIC MODE	[OFF]
RESET	
EXECUTE	

5. On Setting Items

* "EZ-SETUP" discussed below indicates "EZ-SETUP after the first power-on".

1) POWER ON FIXED

Selection	Selection between "Variable" and "Fixed" (loop provided)
Default	– (Variable)
Explanation	In "Fixed" setting, the power-off by the power key of the unit is invalidated and the image is kept being received. The power can be turned off by stopping the power supply from AC.
Limit in Setting	Refer to the "Power-On Fixed" sheet.
Exception	None
Remarks	• In "Variable" setting, the power operation is in wait for 1 sec. and then turned off when the main power switch is off.

2) MAXIMUM VOLUME

Selection	Adjustment from 0 to 60 (no loop)
Default	60
Explanation	Sound volume can not be adjusted higher than the preset value.
Limit in Setting	• When the sound volume is set lower than 59, only figures are displayed and the sound volume bar is not displayed. • The maximum sound volume for ON-timer (Wake up timer) is limited also to the preset value.
Exception	
Remarks	• When the sound volume is set higher than the MAX setting by the adjusting process, the sound volume control operation is prohibited for turn-up and the sound volume should be turned down to MAX in this state.

3) VOLUME FIXED

Selection	Selection between "Variable", "Fixed", "ACON (AC CTRL)" and "AC/RCON (AC/RC CTRL)" (loop provided)
Default	Variable
Explanation	• FIXED: Fixed at the level adjusted for a fixed volume. • AC CTRL: Start-up at the level specified for a fixed volume at ACON. • AC/RC CTRL: Start-up at the level specified for a fixed volume at start.
Limit in Setting	• The sound volume for the ON-timer (Wake up timer) is fixed also without display of menu. Besides, the setting is made impossible. (Basically, the menu is not displayed.) • The following keys become invalid: • Sound volume Up/Down (VOL +/-) [for both remote control and the unit] • Mute (MUTE)
Exception	• In the item "VOLUME" of adjustment process, the sound volume can be set freely irrespective of this setting.
Remarks	• As for sound volume fixing and sound volume MAX level, the sound volume fixing has priority. • Once the sound volume has been changed by adjustment process, it should be set back to the sound volume preset by sound volume fixing level when the adjustment process ends.

4) VOLUME FIXED LEVEL

Selection	Adjustment from 1 to 60 (no loop)
Default	20
Explanation	The sound volume to be fixed by "Volume fixed" is determined.
Limit in Setting	None
Exception	None
Remarks	Setting is valid only when "Volume fixed" is selected for "fixed".

5) RC BUTTON

Selection	Selection between "Respond", "No Respond" and "Limited" (loop provided)
Default	Respond
Explanation	Making the remote controller settings. • At the "No Respond" setting, the remote controller keys are disabled. Its power key (reception/standby key) is disabled too. • At the "Limited" setting, some channel-related keys alone are operative. All the other remote controller keys (power, volume ▲/▼, channel ▲/▼, light control (brightness sensor), broadcast select) are inoperative.
Limit in Setting	① In "No respond" setting, all the keys (including the power key) are not accepted.
Exception	• Adjustment process, inspection process and hotel only keys are valid irrespective of setting. • All the keys can be used in adjustment process, inspection mode and hotel menu irrespective of setting.
Remarks	

6) PANEL BUTTON

Selection	Selection between "Respond" and "No respond" (loop provided)
Default	Respond
Explanation	All the operations by keys (except the power key) of the unit can be invalidated.
Limit in Setting	
Exception	- Adjustment process, inspection mode and hotel menu mode can be started irrespective of setting. - All the keys can be used in adjustment process, inspection mode and hotel menu irrespective of setting.
Remarks	

7) MENU BUTTON

Selection	Selection between "Respond" and "No respond" (loop provided)
Default	Respond
Explanation	In "No respond" setting, the menu operation by the menu key of the remote control and the menu key of the unit are invalidated.
Limit in Setting	
Exception	- Adjustment process, inspection mode and hotel menu mode can be started irrespective of setting. - All the keys can be used in adjustment process, inspection mode and hotel menu irrespective of setting.
Remarks	

8) ON SCREEN DISPLAY

Selection	Selection between "Yes", "No" (loop provided)
Default	Yes
Explanation	- At the "No" setting, the following items are not displayed on screen: register, setting, adjustment menu, channel call and volume bar. On the wide-screen models, an input selection is immediately made because the menu is not displayed. - At the "Limited" setting, some items cannot be displayed on screen. On the Japan-destined models, the channel call "Message" alone cannot be displayed. (This is because the channel call message may be confused with a message being sent from the hotel.) On the North America-destined models, the OSD works the same as at the "No" setting.
Limit in Setting	- Keys falling under any of the following items become invalid. ① Appearance of screen changes and the sound changes. ② Personal functions which are hard to restore. Screen display, menu, OFF-timer, ON-timer, AV MODE, screen size switching, clock setting, treble emphasis, AUDIO ONLY, sound changeover, LANGUAGE, CLOSED CAPTION
Others	Simple input switching is generated. Those which are restored soon after leaving as they are and may be requested for change by customer are not prohibited. Brightness sensor (BACKLIGHT) and PIC. FLIP
Exception	Such a caution which is displayed independently is displayed as it is. Non-responding signal caution
Remarks	When CC has already been ON, CLOSED CAPTION is displayed.

9) INPUT MODE START

Selection	Selection between "Normal", "Air (✱)", "INPUT 1/2/3", "PC", "HDMI 1/2/3/4/5", "DVI" (loop provided)
Default	Normal
Explanation	In power-ON, the input source to be started or channel can be set. (In standard mode, the operation follows the last memory.)
About options	- All the input sources in the model are made selectable. - In TV mode, the channel to be set follows the last memory and the content of the last memory is included in the notation by options. Ex.) Air (2), Cable (98.1) etc.
Limit in Setting	The display of channel setting menu and the channel setting operation are prohibited.
Exception	
Remarks	In setting at "Normal", the setting of "Input mode fixed" is changed to "Variable" and selection should be prohibited.

10)INPUT MODE FIXED

Selection	Selection between “Variable”, “Fixed”, “ACON (AC CTRL)” and “AC/RCON (AC/RC CTRL)” (loop provided)
Default	– (Variable)
Explanation	• At the “Fixed” setting, the TV set gets started with the settings of “Input mode start”, and then any other channels and inputs are not accepted. • At the “ACON (AC CTRL)” setting, the TV set gets started with the settings of “Input mode start” under AC control. • At the “AC/RCON (AC/RC CTRL)” setting, the TV set gets started with the settings of “Input mode start” under either control.
Limit in Setting	• With the execution of hotel mode, the input source is forced to change to that set by “Input mode start” and the channel switching and input switching are prohibited thereafter. • ON-timer's (Wake-up timer) channel items are not displayed or the operation is prohibited. (Basically, they are not displayed.) • The following keys are invalidated. CH ▲ / ▼, direct tuning button, FLASHBACK, input *However, the keys (input switching and CH ▲ / ▼ keys) of the unit for menu operation remain valid.
Exception	None
Remarks	• In the following case, setting is cancelled and mode is changed to “Variable”. ① When the setting of “Input mode start” is set to “Normal”.

11)RC_PATH_THROUGH

Selection	Selection between “OFF”, “ON: TV RCE” and “ON: TV RCD” (loop provided)
Default	OFF
Explanation	Function to feed the remote controller-received signal to Pin 9 (open) on the RS232C.
Limit in Setting	None
Exception	None
Remarks	None

12)AV POSITION FIXED

Selection	Selection between “Variable” and “Fixed” (loop provided)
Default	Variable
Explanation	In case of “Fixed” setting, – Menu “Picture” and “Audio” setting can't be changed like “Dynamic (Fixed)”. – When “AV Mode” key is pressed, TV just displays current AV Mode (cannot be changed.).
Limit in Setting	None
Exception	None
Remarks	• When receiving with AV Position key, OPC, Dolby key and other direct audio select keys, the current display stays on and no setting can be changed. • Even by initializing personal information, the hotel-mode settings are kept intact. In this way, the AV positions, video and audio adjustment settings are not initialized.

13)LOUD SPEAKER (ON/OFF)

Selection	Selection between “ON” and “OFF” (loop provided)
Default	ON
Explanation	If “OFF” is selected, TV stops Speaker output even without Headphone connected.
Limit in Setting	None
Exception	None
Remarks	• Press the volume UP/DOWN key, and the mute icon appears for 4 seconds. • The mute key and audio-related keys are displayed with caution. • Usually, the headphones and monitor audio outputs can be adjustable.

14)232C POWON

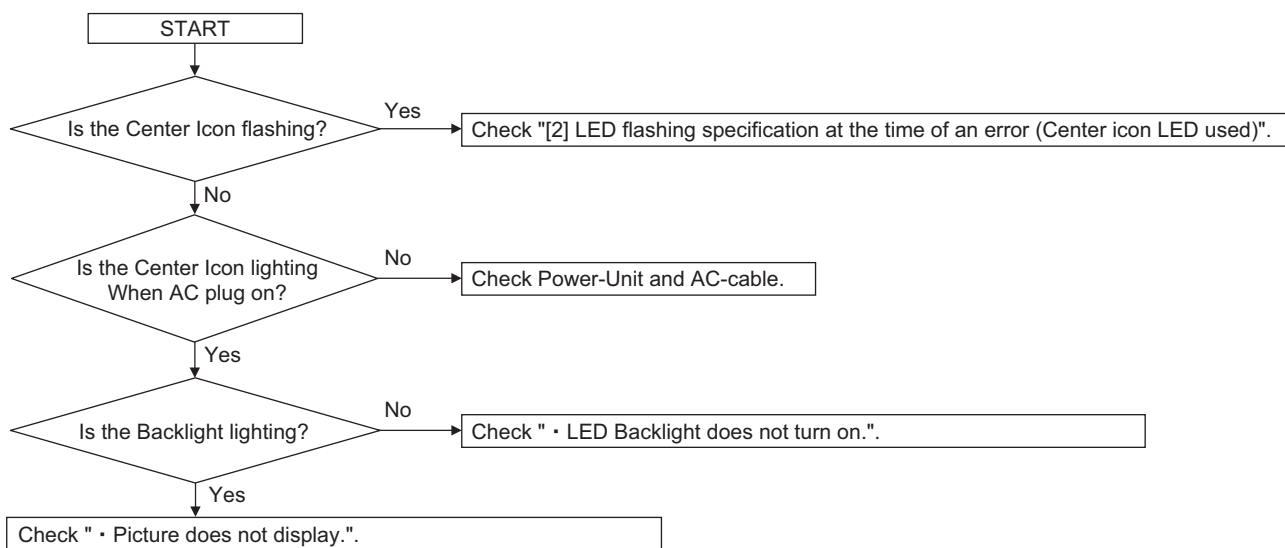
Selection	Selection between “Disable” and “Enable” (loop provided)
Default	Disable
Explanation	In the standby mode, the power-on by the 232C command is enabled or disabled.
Limit in Setting	None
Exception	None
Remarks	None

15)PUBLIC MODE (ON/OFF)

Selection	Selection between “ON” and “OFF” (loop provided)
Default	OFF
Explanation	In case of “ON”, public mode settings are effected.
Limit in Setting	None
Exception	None
Remarks	The public-mode settings are operable only when this item is set at ON.

CHAPTER 6. TROUBLESHOOTING TABLE

[1] Failure diagnosis by LED in front of cabinet



[2] LED flashing specification at the time of an error (Center icon LED used)

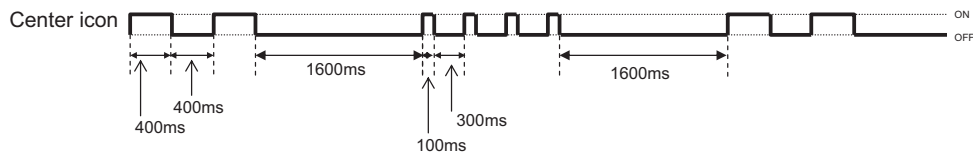
1. Display method

- Since only the center icon LED can be used, slow flashing and fast flashing are combined.
- Refer to Table 1.
- The Start from the detail display. (No outline display)
- After recovering from an error, if the same error cannot be generated again, refer to MONITOR ERR CAUSE on the process screen.
- During version upgrade, the brightness of the flashing LED changes smoothly.
- When completing version upgrade, the brightness of the LED changes in a staircase pattern.

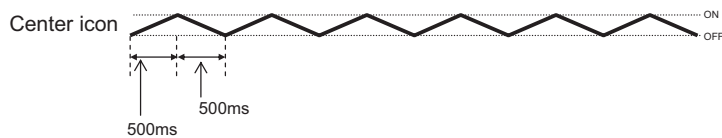
2. LED flashing method

Error flashing

<Detail display example>



• Flashing during Verup



• Flashing when completing Verup

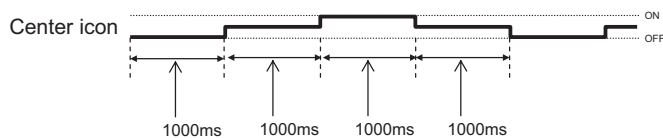


Table 1. Concrete flashing pattern

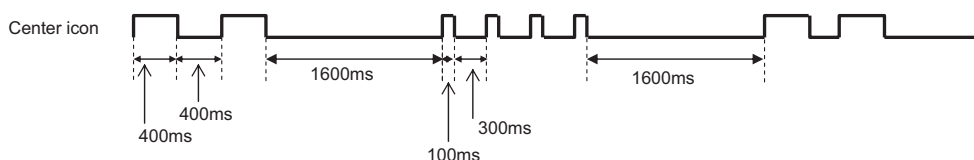
Item	Detail display		Cause
	Slow flashing	Fast flashing	
Inverter/Lamp system failure	Flashes once	Flashes once	Lamp error
Power PWB failure (Power failure, etc.)	Flashes twice	Flash once	Power supply error 2 (*2) AC_DET error
		Flash twice	Power supply error 2 (*2) UR+13V error
		Flash 3 times	Power supply error 2 (*2) D+3.3V error
		Flash 5 times	Panel power supply error
Main PWB failure (Communication failure, etc.)	Flashes 3 times	Flashes once	Initial communication error
		Flashes twice	Start-up confirmation communication error
		Flashes 3 times	Regular communication error
		Flashes 5 times	Other communication error
Others	Flashes 4 times	Flashes once	Temperature error
		Flashes twice	Sync error
		Flashes 3 times	Notification from the main microcomputer (*3)
VerUP executing	Flashes smoothly	None	Version upgrading
VerUP succeeded	Flashes in a staircase pattern	None	Version upgrade succeeded
VerUP failed	None	Flashes continuously	Version upgrade failed
ROM data failure	None	Flashes continuously	Start-up after failing version upgrade (*4)

*2: They depend on the system. Power supply error is defined from product to product.

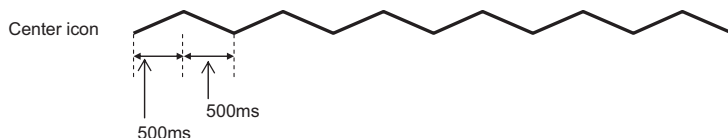
*3: For details, refer to ERROR STANDBY CAUSE on the adjustment process screen.

*4: If the boot section is abnormal, there is no flashing (flashing impossible).

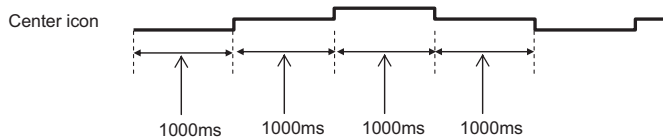
3. New method



• Flashing during Verup



• Flashing when completing Verup



LED flashing timing chart at the time of an error



1) Inverter/Lamp failure details (Flashes slowly once and flashes fast)

Note

Error type	Center icon LED operation	Pins are monitor microcomputer pins unless otherwise specified.
Lamp failure Flashes fast once	H: On  L: Off	ERR_PNL (19pin): Hi failure. Confirmed after 8 consecutive detections at 64msec intervals (detected only when the backlight is on). Note that after five detection counts, the lamp cannot be activated except in the monitor process. Accumulated counts are cleared to 0 by the setting in the process A.

2) Power failure details (Flashes slowly twice and flashes fast)

Note

Error type	Center icon LED operation	Pins are monitor microcomputer pins unless otherwise specified.
PS_ON AC_DET failure Flashes fast once	H: On  L: Off	AC_DET (28pin) failure (L). If error is detected during start-up or operation by interrupt, the power is turned on again.
SM_POW Main 13V failure Flashes fast twice	H: On  L: Off	DET_13V (32pin) failure (L). Main 13V is not applied. If error is detected during start-up or operation, the power is turned on again by polling.
D_POW Digital 3.3V failure Flashes fast 3 times	H: On  L: Off	DET_D3V3 (33pin) failure (L). Digital 3.3V is not applied. If error is detected during start-up or operation, the power is turned on again by polling.
PANEL_POW Panel 12V failure Flashes fast 5 times	H: On  L: Off	DET_PNL12V (34pin) failure (L). Panel power is not applied. Detection is started after turning on the panel power and receiving command; the power is turned off by polling.

3) Communication failure details (Flashes slowly 3 times and flashes fast)

Note

Error type	Center icon LED operation	Basically, debug print logs are analyzed or communication logs are analyzed by a bus monitor.
Initial communication reception failure Flashes fast once	H: On  L: Off	Initial communication from the main CPU is not received. (Request for the monitor model No. is not received.) → Communication line failure or main CPU start-up failure
Start-up confirmation reception failure Flashes fast twice	H: On  L: Off	Start-up reason confirmation from the main CPU cannot be received. (Start-up communication until start-up reason notification command is not received.) → Main CPU start-up failure or monitor microcomputer reception failure
Regular communication failure Flashes fast 3 times	H: On  L: Off	Regular communication that is performed at 1 second intervals in the normal operation is interrupted. → Main CPU operation failure or monitor microcomputer reception failure
Other communication failure Flashes fast 5 times	H: On  L: Off	When a request (PM_REQ=H) is sent from the main microcomputer, the request command is not output from the main CPU, etc. → Main CPU operation failure or monitor microcomputer reception failure

4) Other failure details (Flashes slowly 4 times and flashes fast)

Note

Error type	Center icon LED operation	Pins are monitor microcomputer pins unless otherwise specified.
Monitor temperature failure Flashes fast once	H: On  L: Off	If the panel temperature is 60°C or more for 15 seconds or more in a row, CAUTION appears on the OSD (flashes in red in the lower right screen). If the panel temperature is 60°C or more for 25 seconds or more in a row, error standby is activated. (MONITOR MAX TEMP on page 15 of the process A: Change of temperature failure AD value): Thermistor
Main failure Flashes fast 3 times	H: On  L: Off	Main microcomputer detection error (CPU temperature error, etc.) The details are displayed on page 1 of the process A of the main microcomputer.

[3] TROUBLESHOOTING TABLE**• LED Backlight does not turn on.**

**If it is not an error of power supply/LED driver,
It is start-up in the lamp error disregard mode.**

↓
Do you start?

↓ YES

When main unit is replaced, does it start normally?

↓ YES

Replace main unit.

↓ NO

When LCD control unit is replaced, does it start normally?

↓ YES

Replace LCD control unit.

↓ NO

When the parts in the panel can be replaced. →Replace all LED-bars in the panel module.
When the parts in the panel cannot be replaced. →Replace panel module.

**If it is not an error of power supply/LED driver,
It is start-up in the lamp error disregard mode.**

↓
Do you start?

↓ NO

When power supply unit is replaced, does it start normally?

↓ YES

Replace power supply unit.

↓ NO

When main unit is replaced, does it start normally?

↓ YES

Replace main unit.

↓ NO

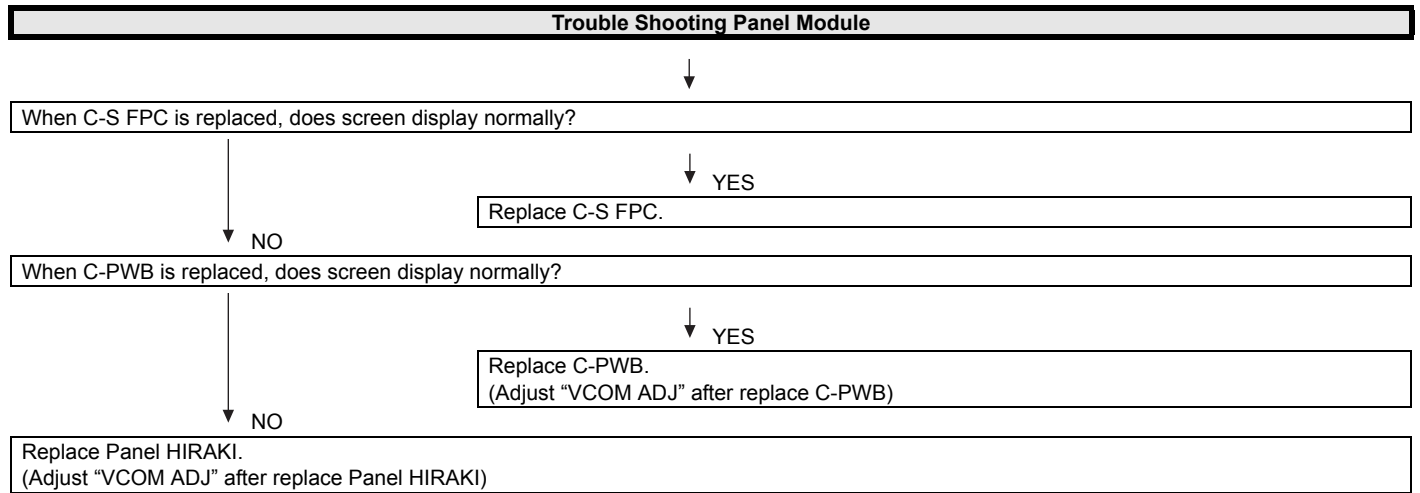
When LCD control unit is replaced, does it start normally?

↓ YES

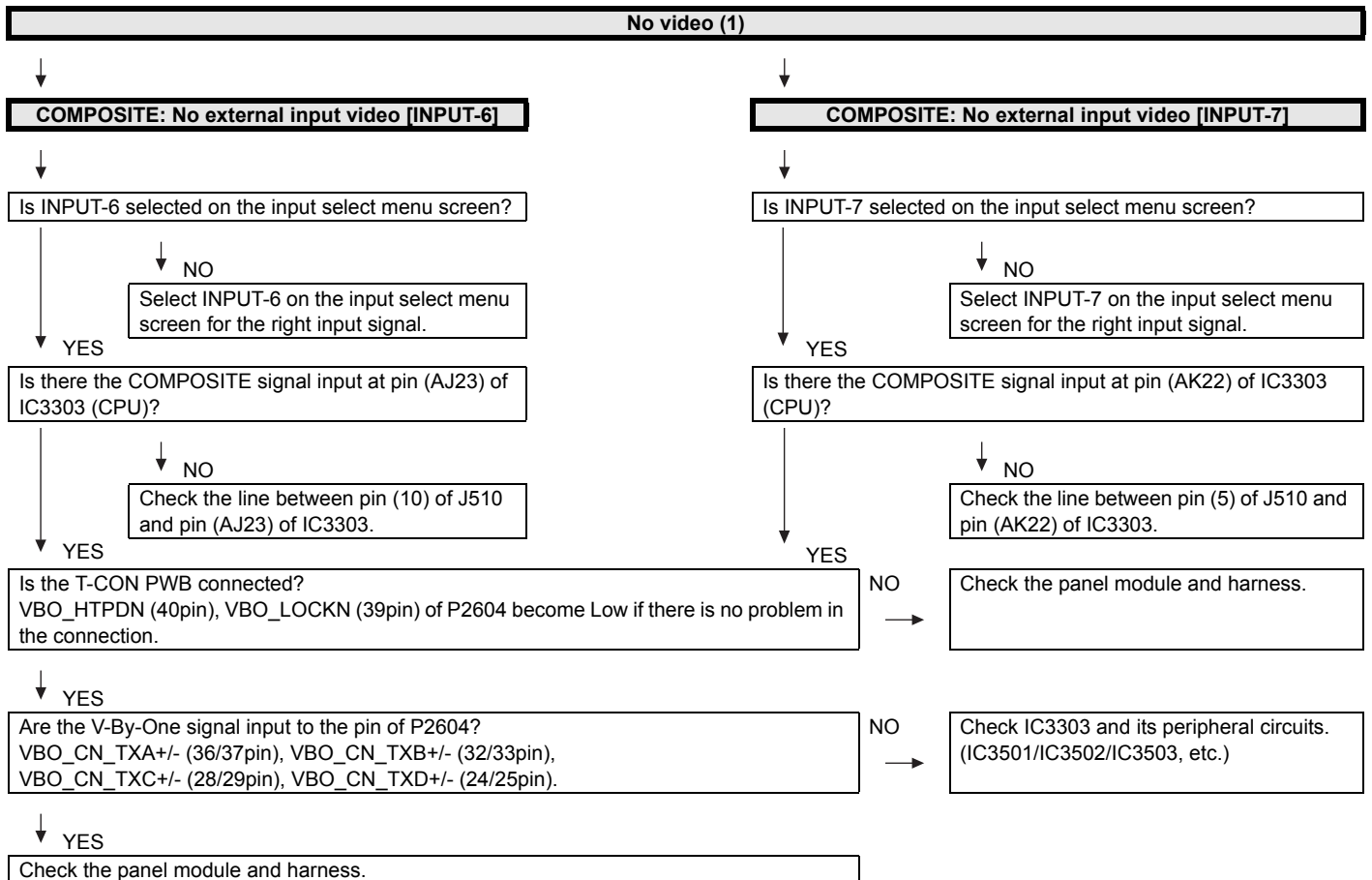
Replace LCD control unit.

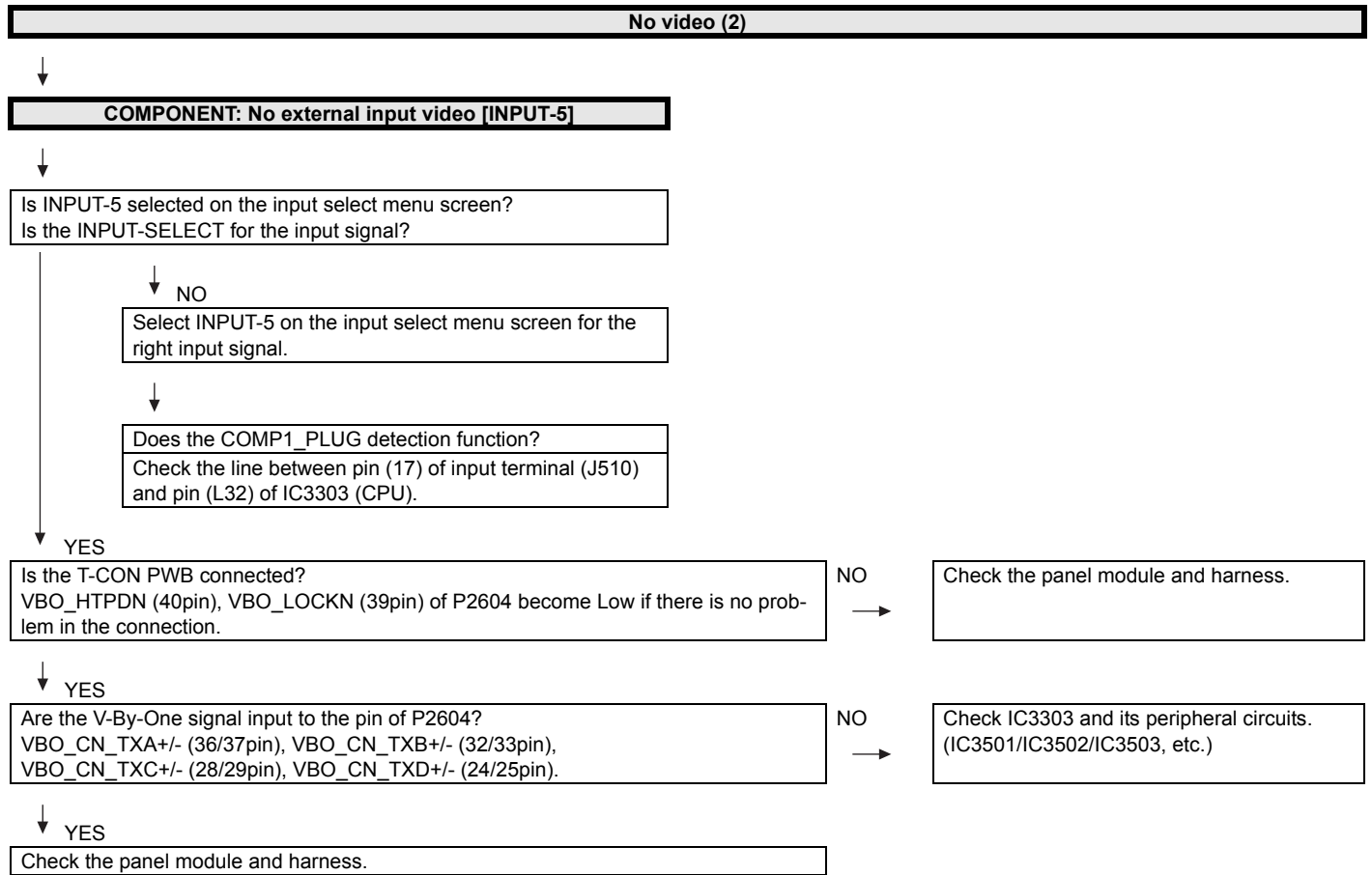
↓ NO

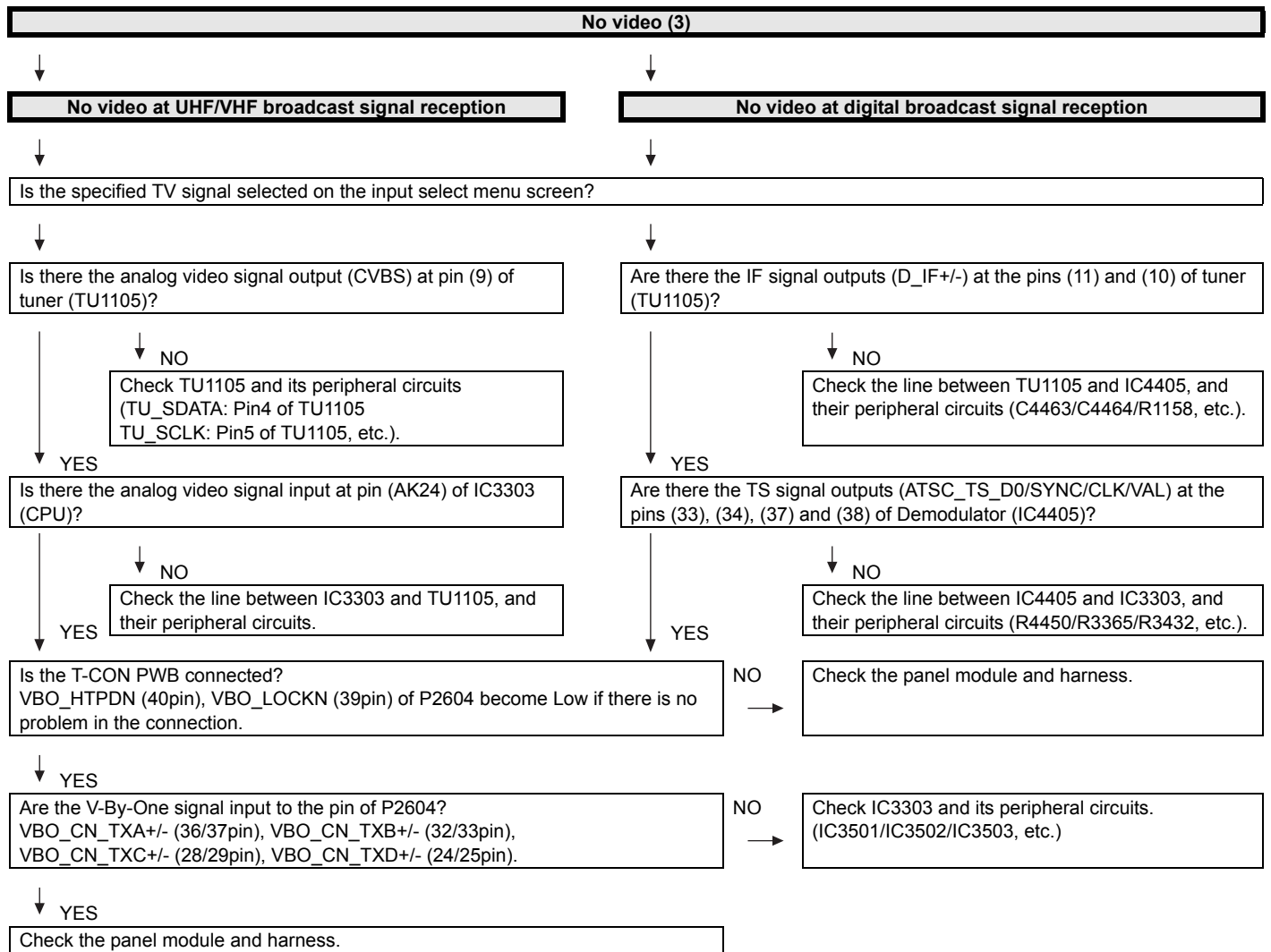
When the parts in the panel can be replaced. →Replace all LED-bars in the panel module.
When the parts in the panel cannot be replaced. →Replace panel module.

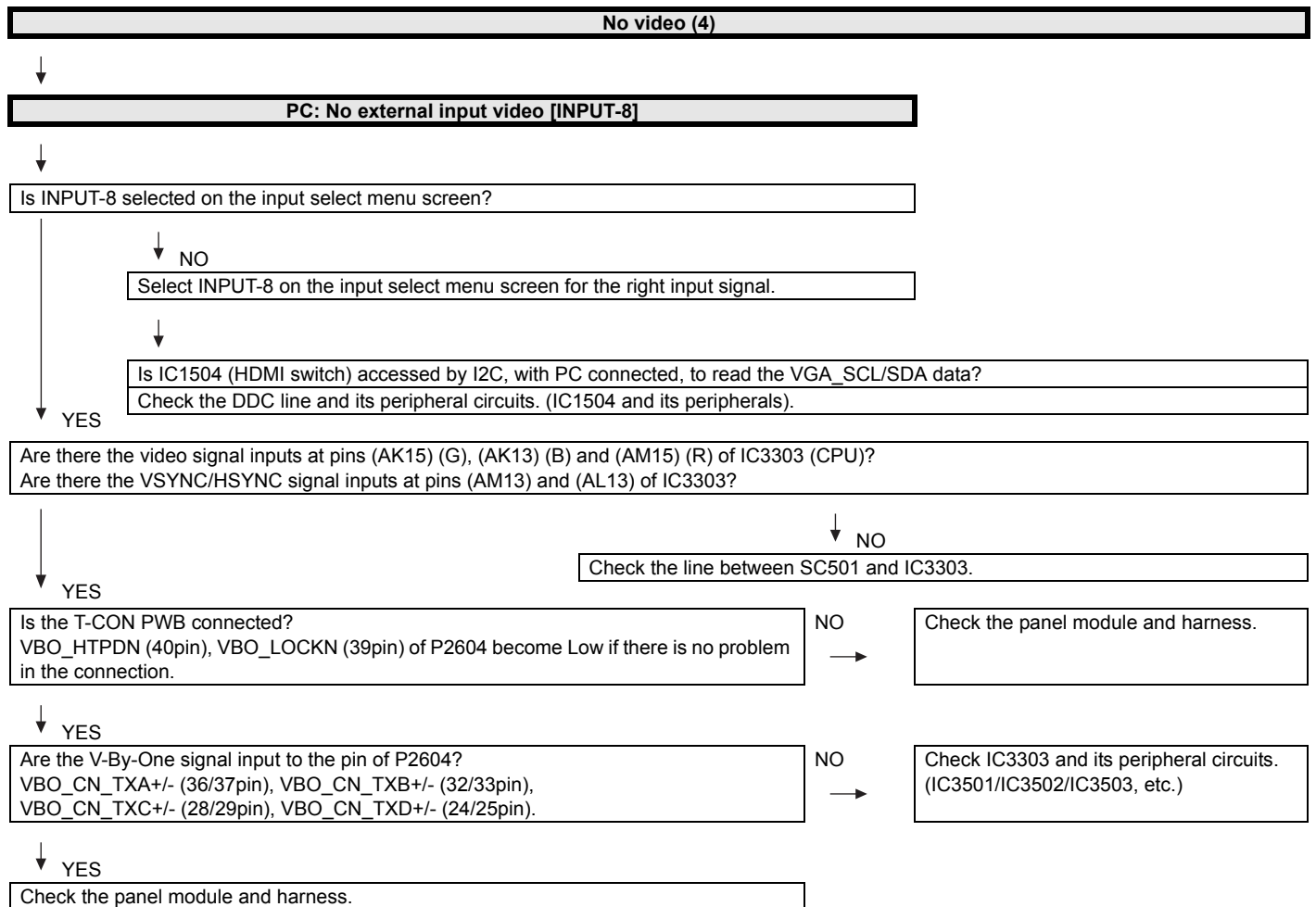


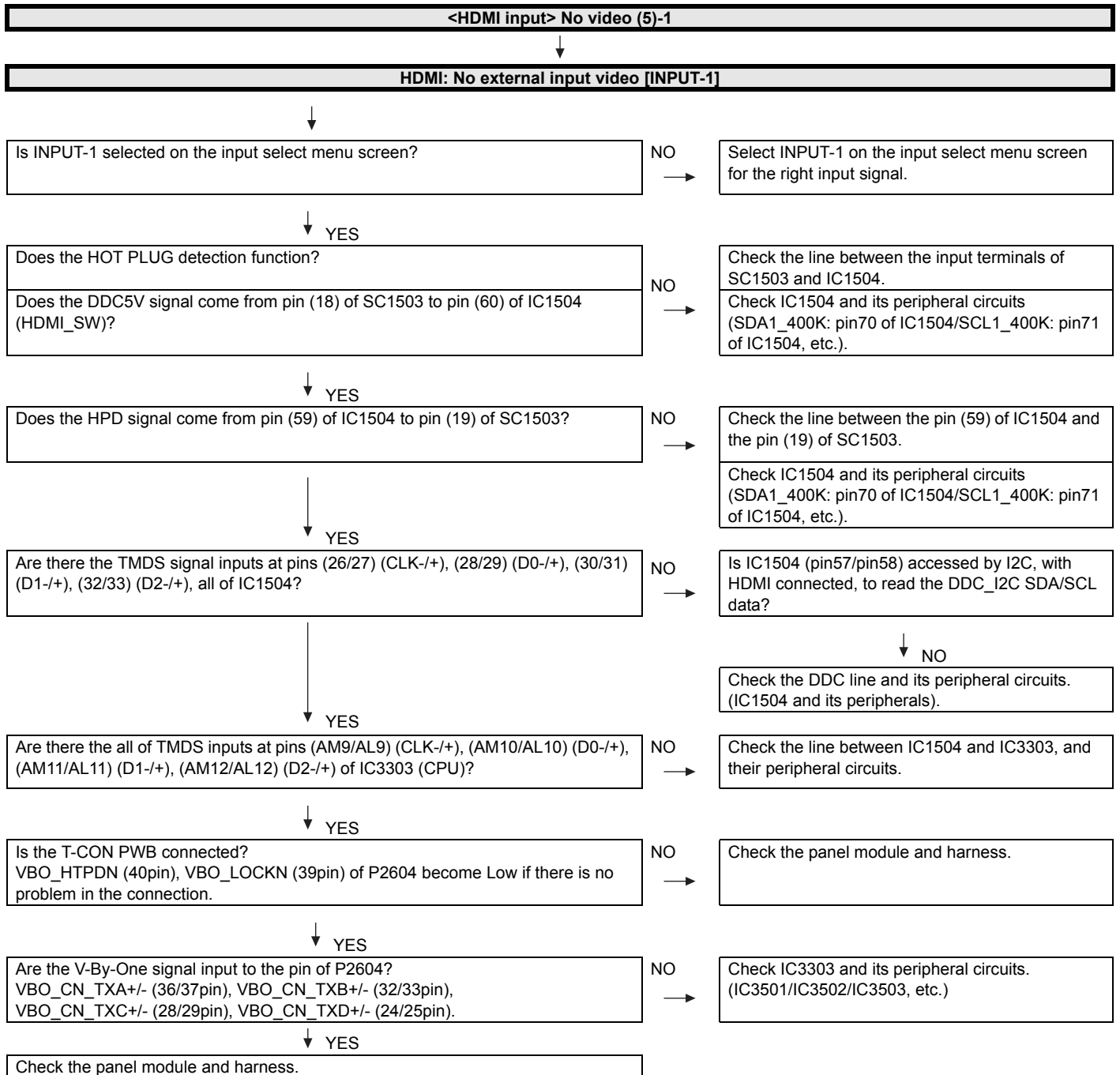
• **Picture does not display.**

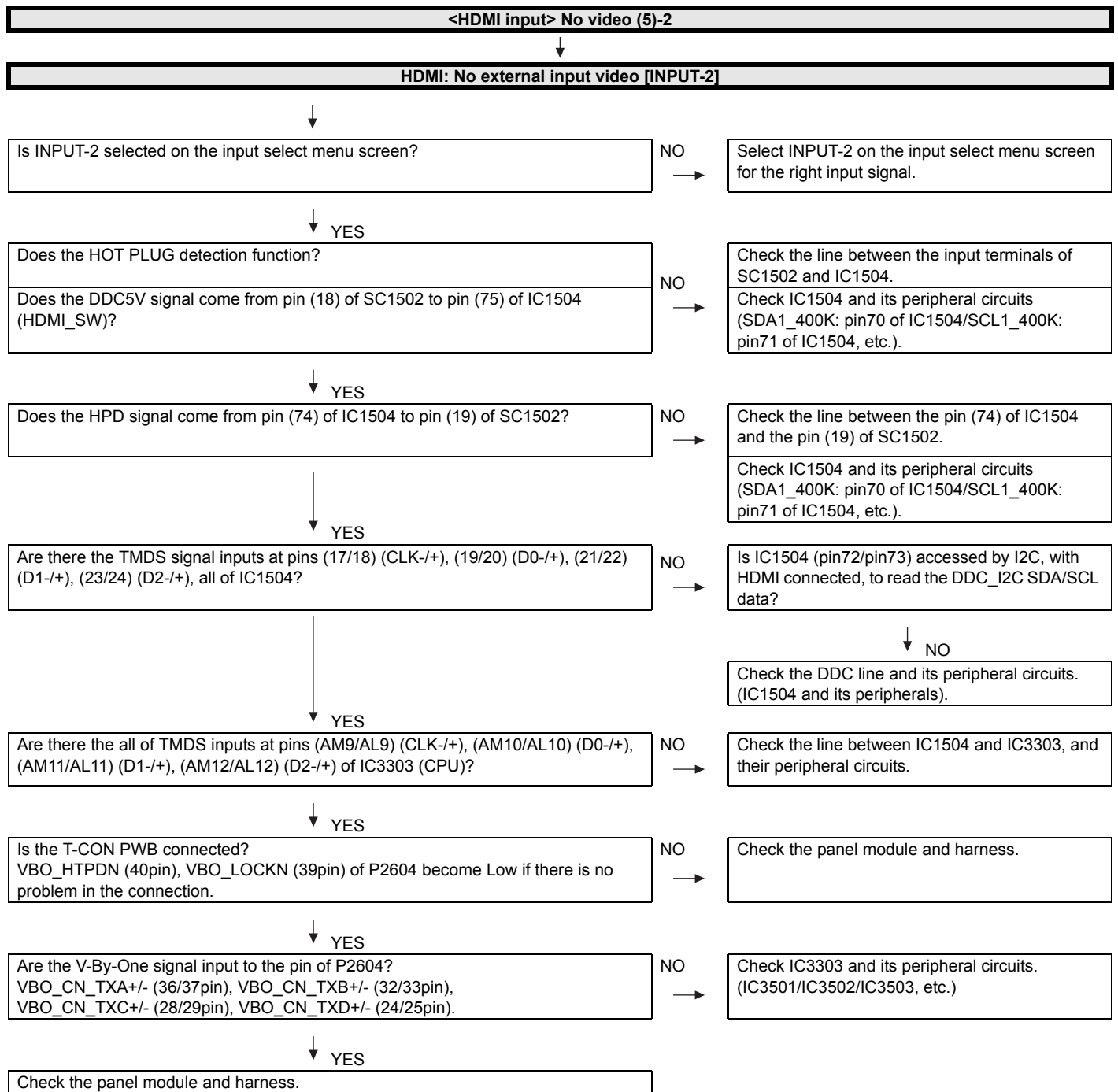


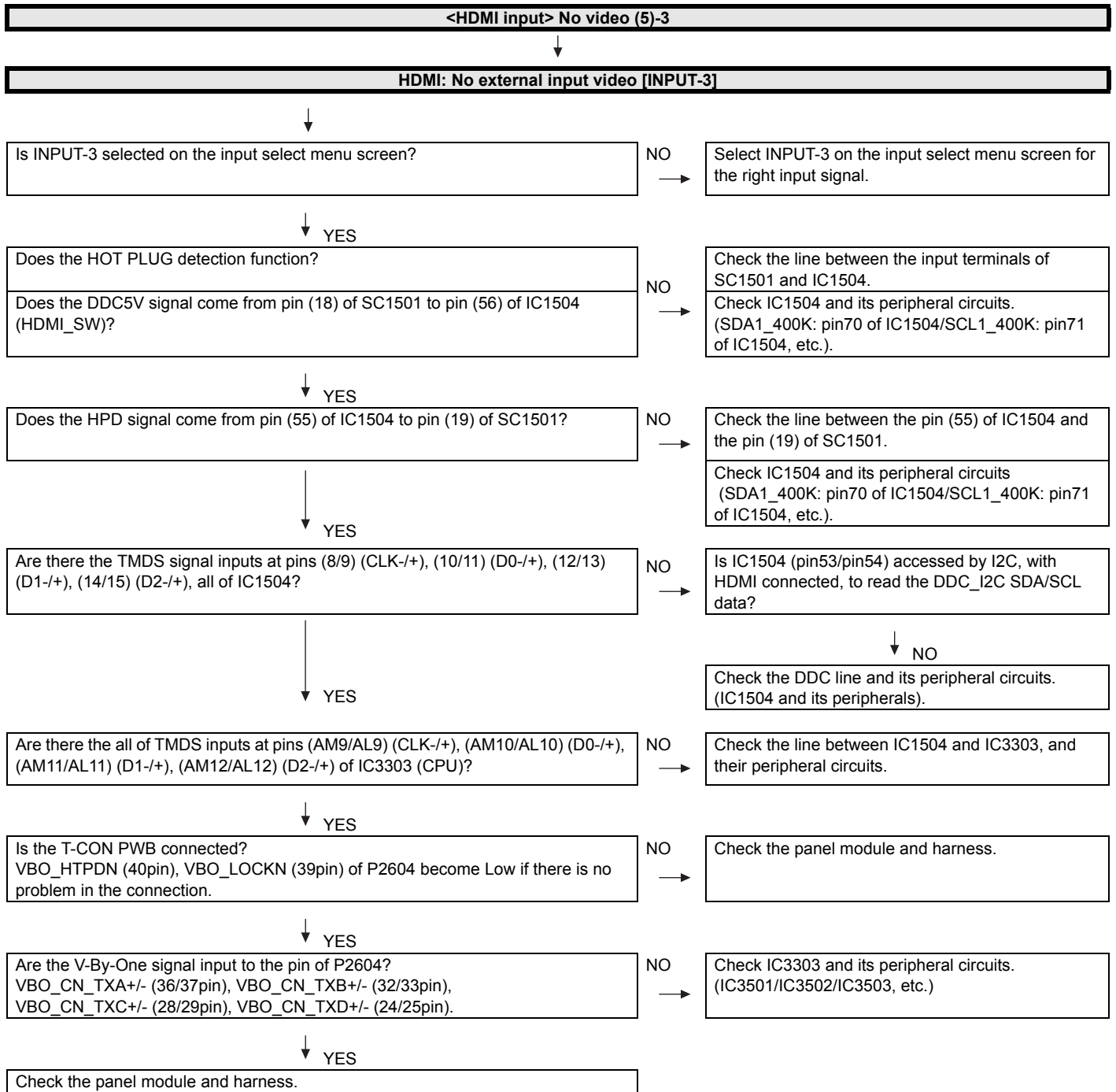


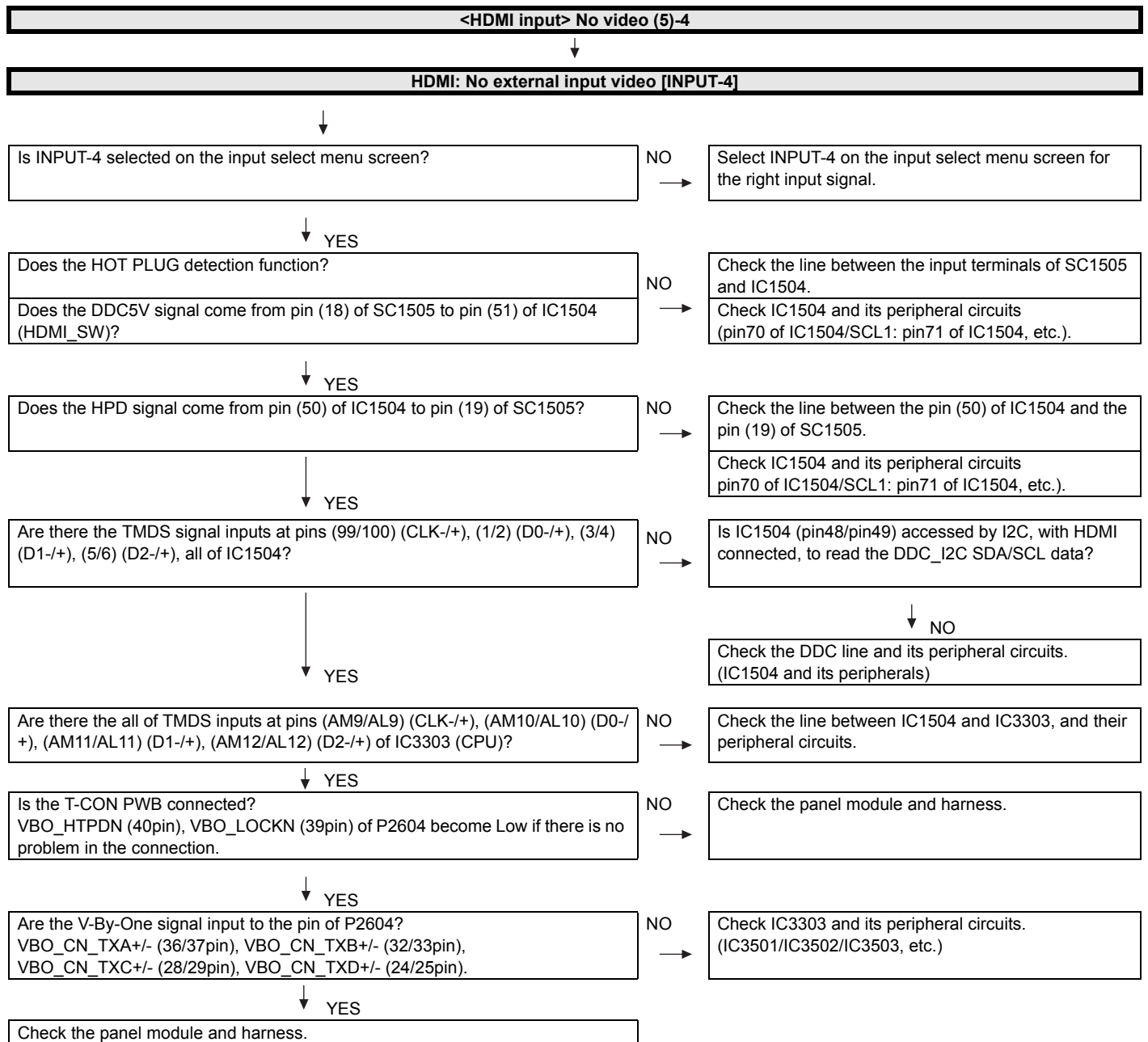




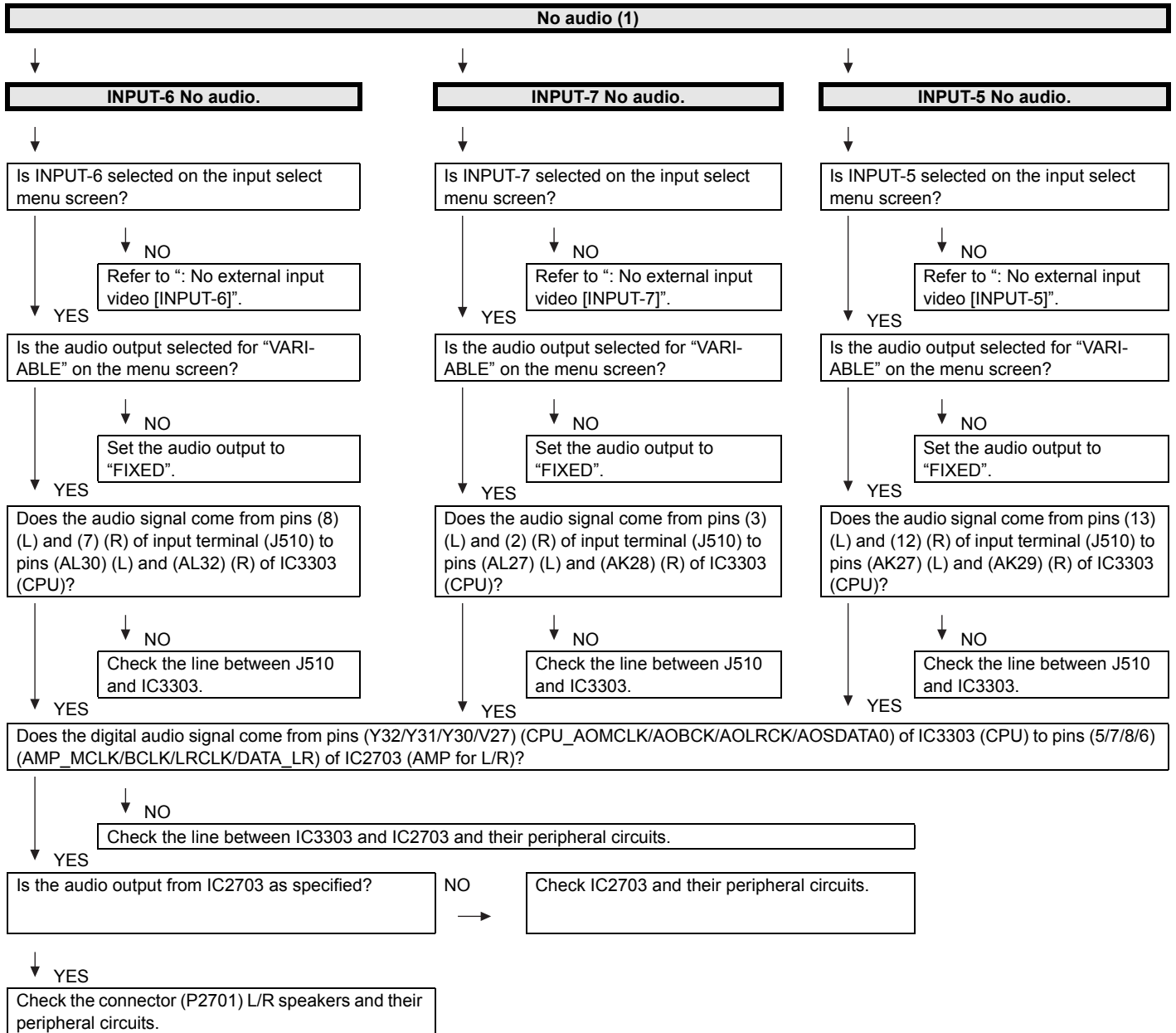


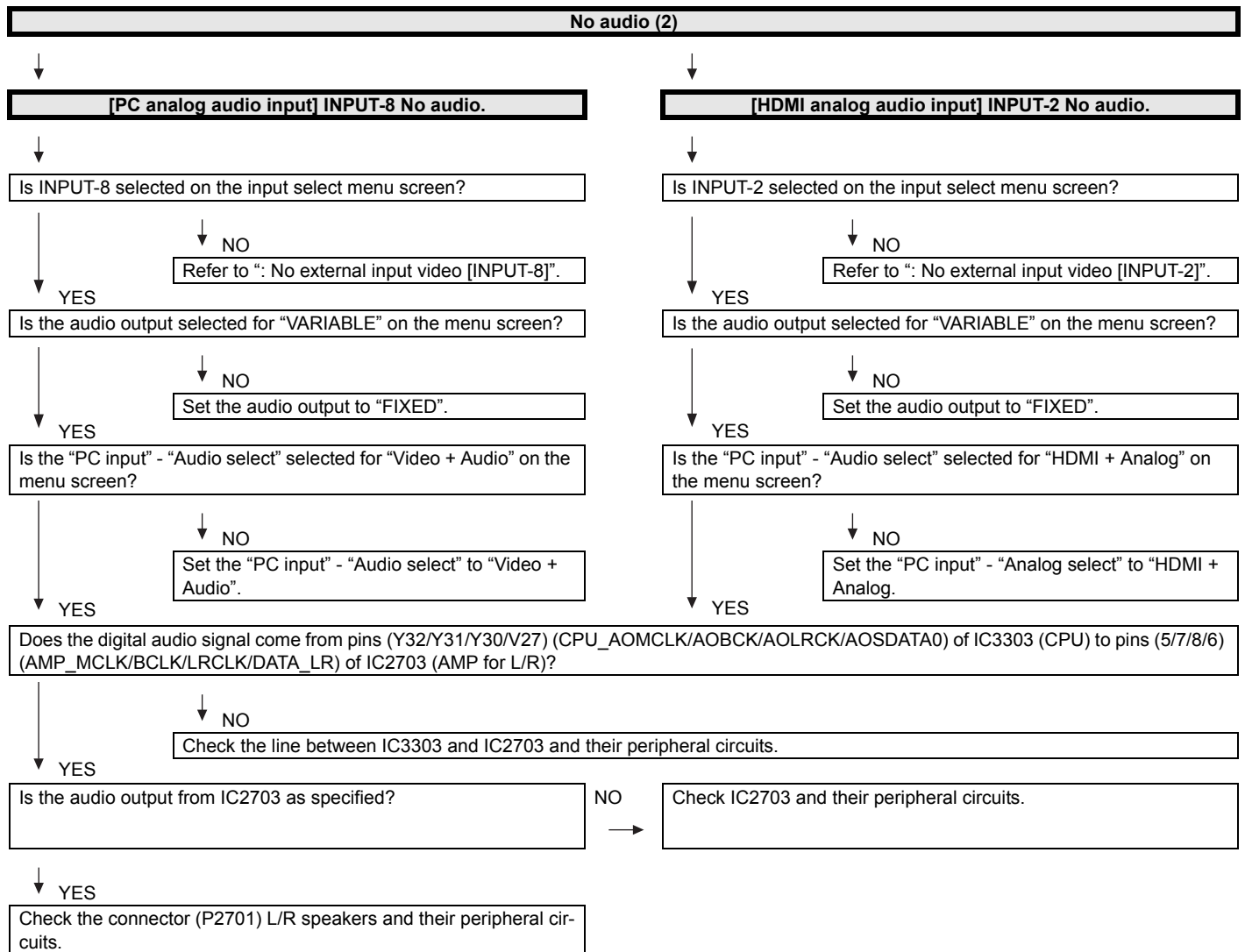


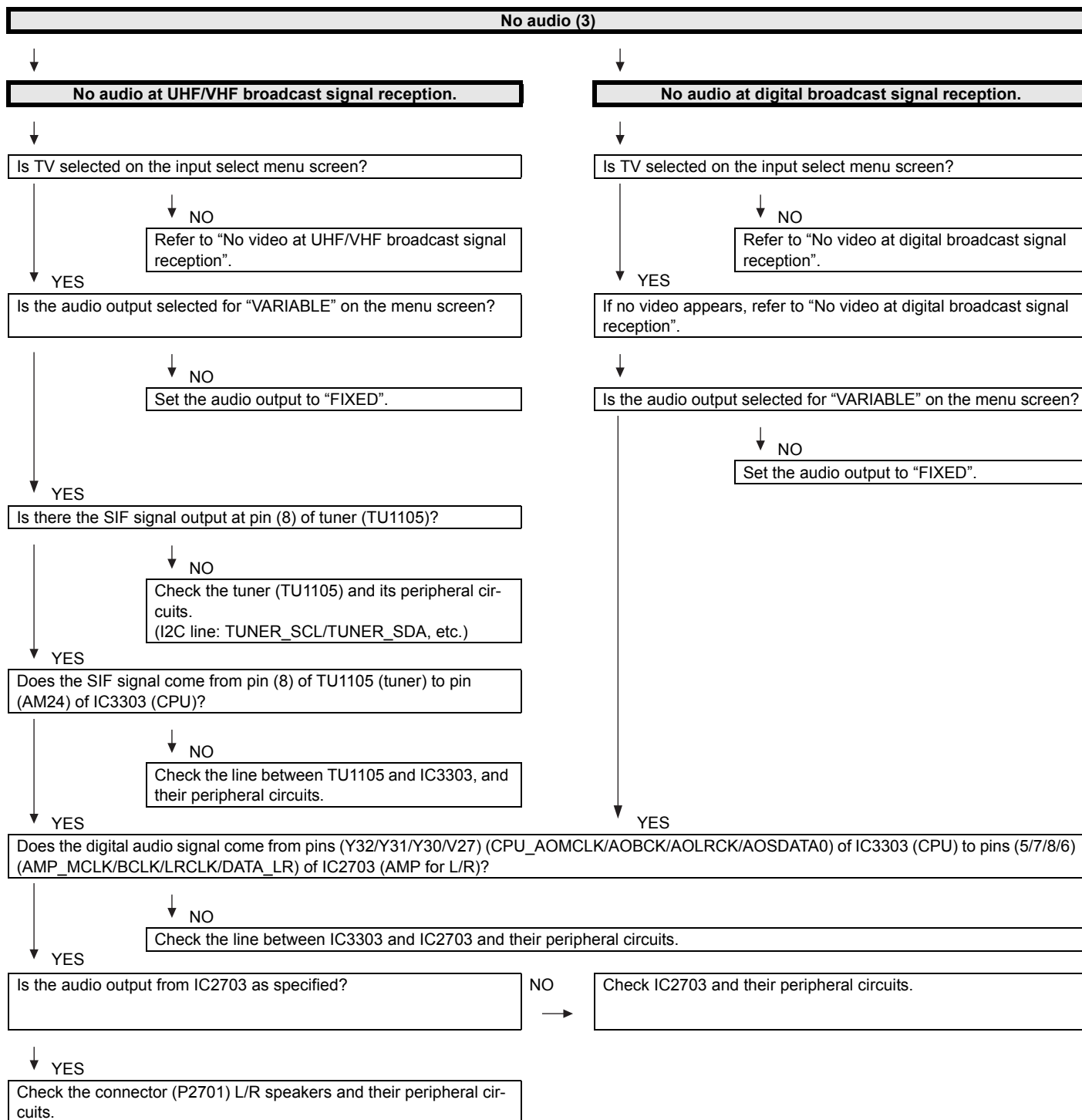


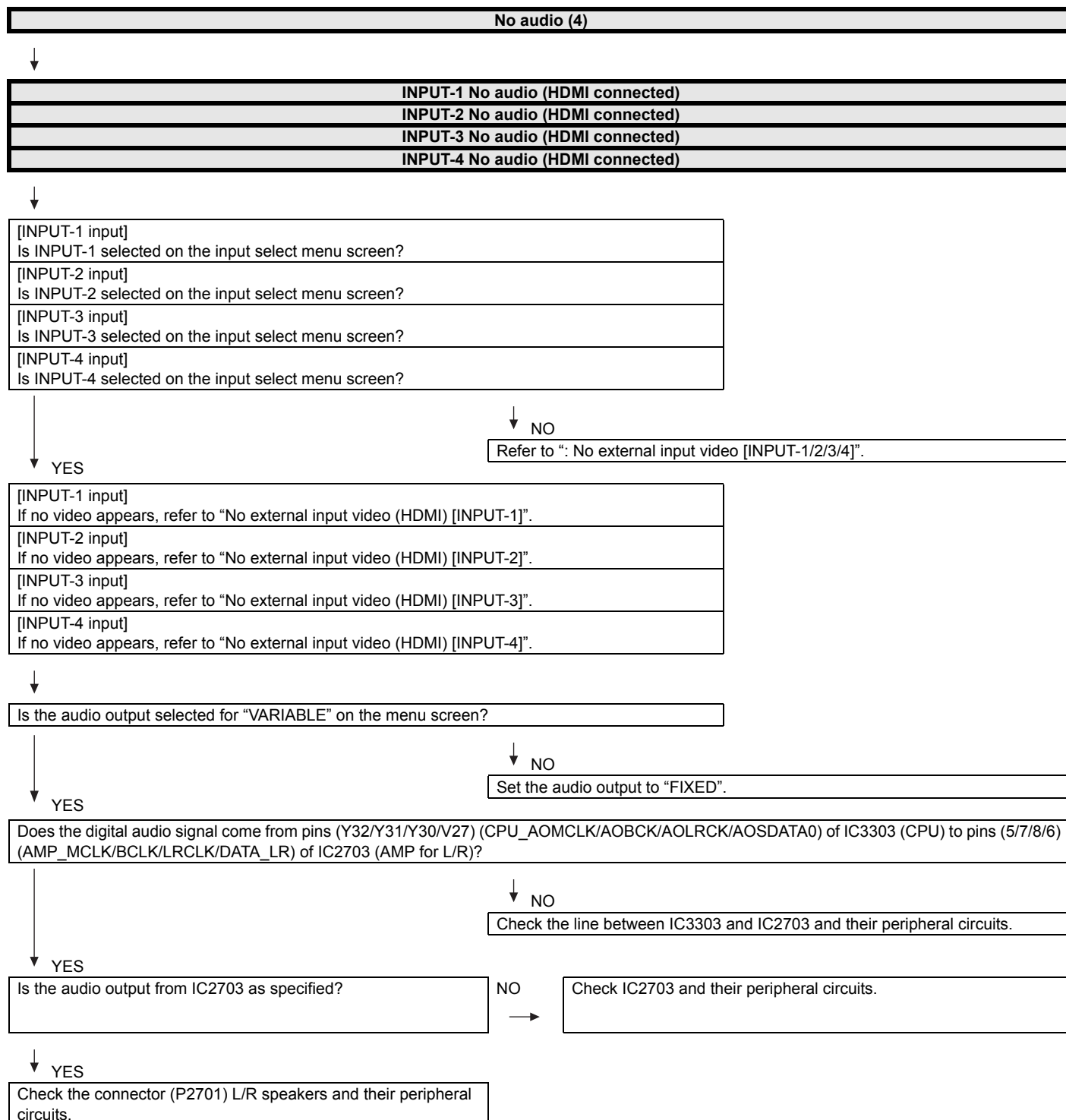


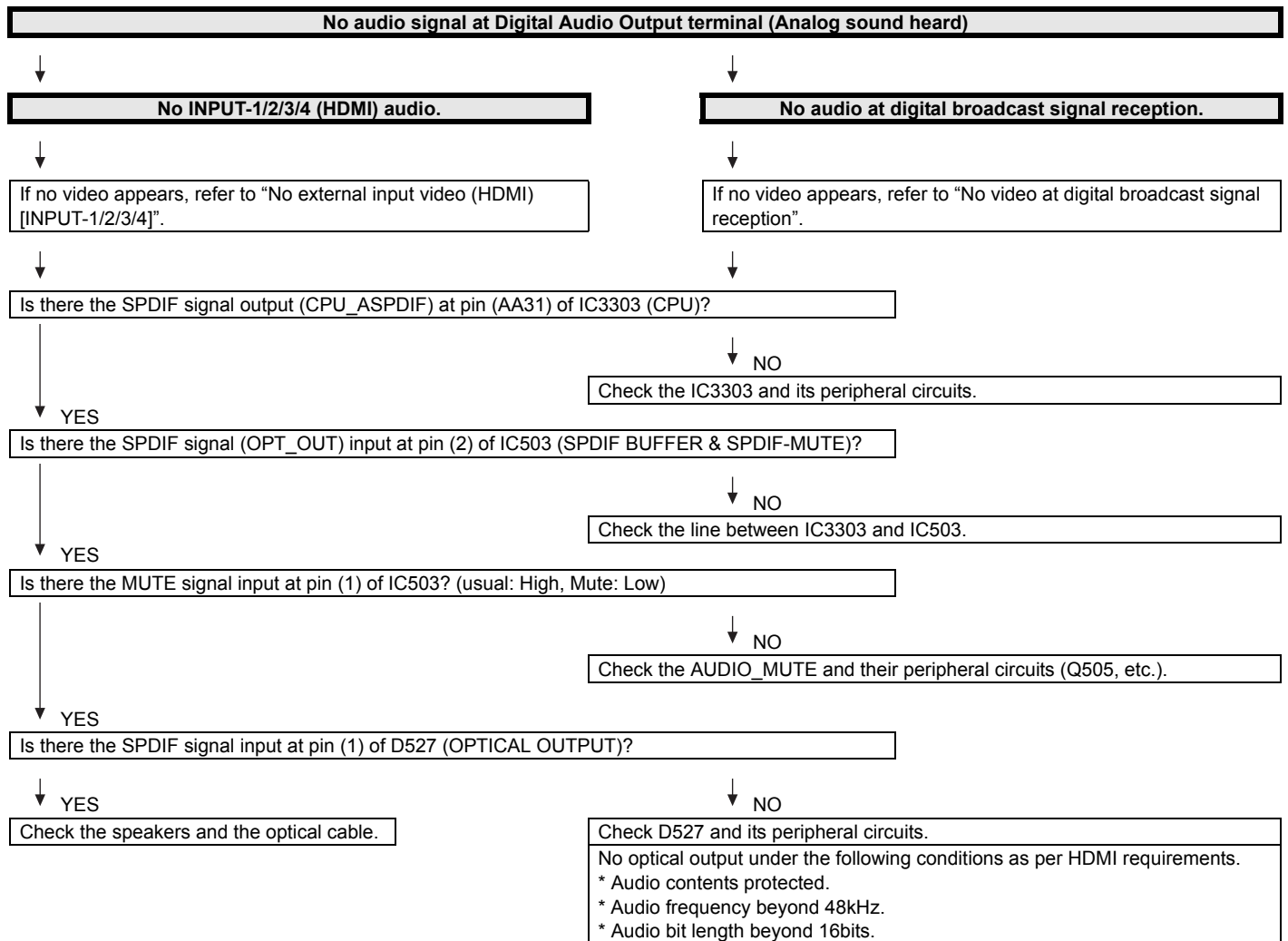
• Does not sound.











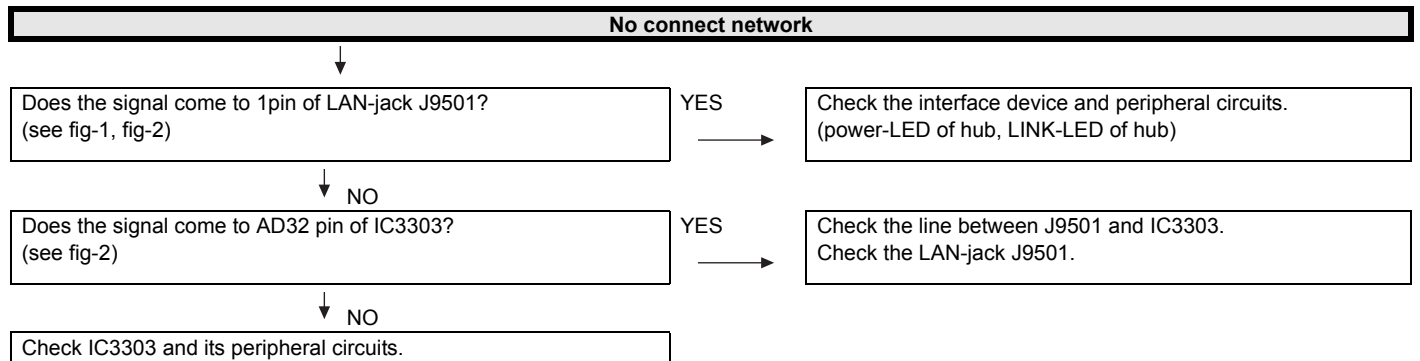
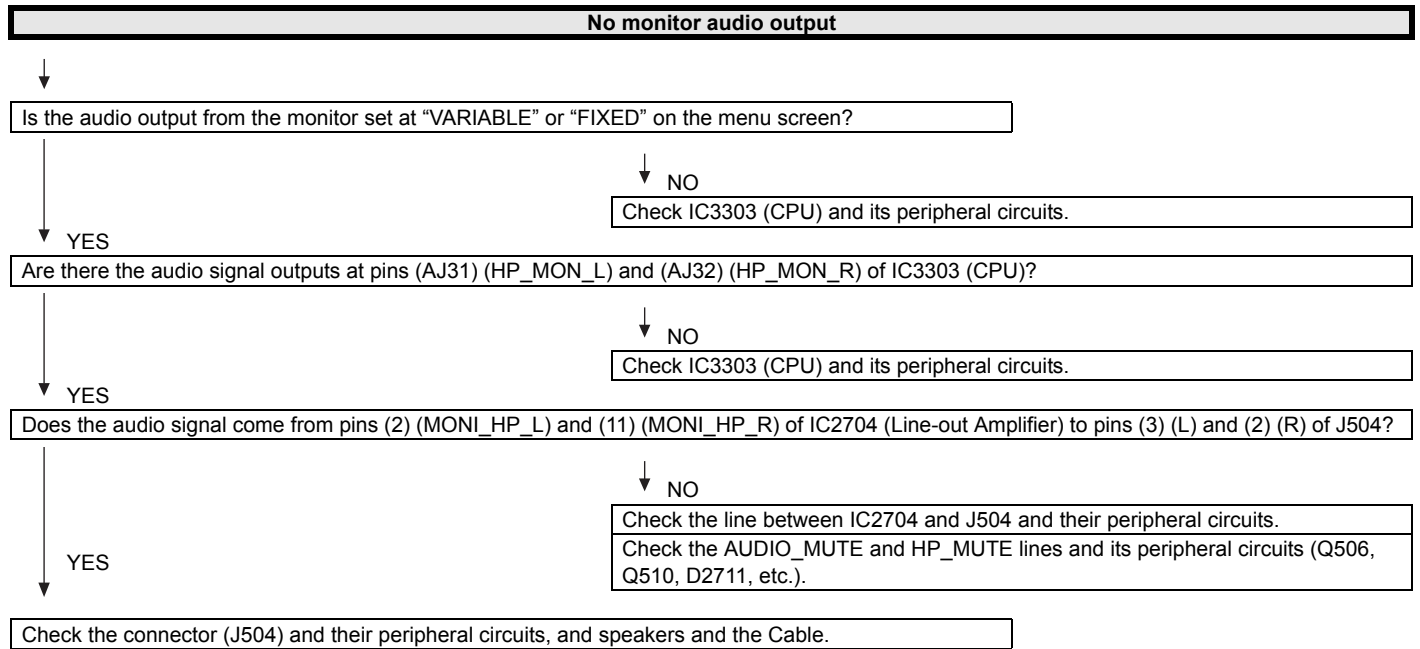


fig-1 LAN-jack J9501

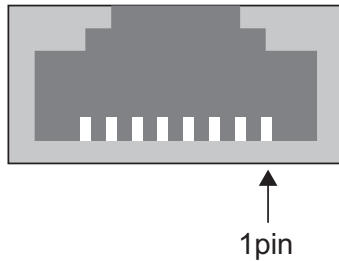
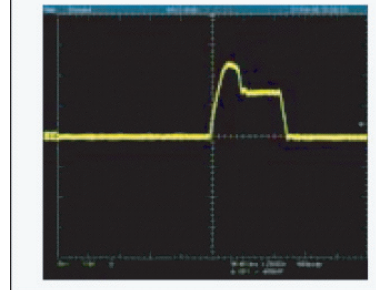


fig-2



CHAPTER 7. MAJOR IC INFORMATIONS

[1] MAJOR IC INFORMATIONS

1. MAJOR IC INFORMATIONS

1.1. IC1504 (VHiSii9387+-1Q)

This IC is 5 input and 1 output HDMI port processor.

The TMDS cores run at 2.25Gbps. (Supports video resolutions up to 1080p, 60Hz, 12bit.)

The adaptive equalizer provides long cable support.

This IC has been pre-programmed with HDCP keys.

EDID and DDC support for 5 HDMI/DVI ports and 1 VGA port. (This IC includes 512-byte NVRAM and 256-byte SRAM for 5 HDMI ports and 128-byte SRAM for VGA port.)

This IC supports the mandatory and several optional 3D formats described in the HDMI 1.4 Specification.

“Audio Return Channel” and “HDMI Ethernet Channel” support for one receiver port.

When changing this IC, please write EDID (how to write EDID is shown in Chapter 5 and section 10.1).

1.2. IC2001 (RH-iXD241WJN1Q: LC-60LE632U, RH-iXD241WJNBQ: LC-70LE732U)

The monitor microprocessor is intended to communicate with the main microprocessor and to operate the system.

It also controls power of the entire system.

1.3. IC2703 (VHiYDA164BZ-1Y)

The Class-D type digital audio power amplifier YDA164BZ gives maximum continuous output of 10 W/ch.

1.4. IC3303 (RH-iXD220WJQZQ)

This LSI is FULL HIGH-DEFINITION 1080P DIGITAL TV SYSTEM-ON-A-CHIP.

It combines a transport de-multiplexer, a high definition video decoder, an AC3 audio decoder, a four-link LVDS transmitter, a V-by-One transmitter, and an NTSC/PAL/SECAM TV decoder with a 3D comb filter (NTSC/PAL).

It supports Full-HD MPEG1/2/4/DiviX/VC1/RM/H.264/AVS video decoder standards, and JPEG.

Audio support includes a BTSC and a Dolby AC3/MPEG-2 Layer 1, 2, audio decoder.

A SPDIF output and a pair of analog outputs (L-R) are provided.

The LSI incorporates a complete ARM11-based microprocessor subsystem including caches with bridging to memory and a local bus, where external peripherals can be attached.

Integrated peripherals include two USB 2.0, three UARTs, counter/timers and GPIO controllers.

1.5. IC3501, IC3502, IC3503 (RH-iXD226WJQZQ)

These are 1G-bit (64M x 16bit) DDR3-1333 synchronous DRAM.

1.6. IC8401 (RH-iXD287WJQZQ)

The 2G-bit NAND flash memory device stores the main CPU program.

1.7. IC8455 (VHiR24064AS-1Y)

This is 64k-bit EEPROM device including the user setting.

1.8. IC506 (VHiM3221EiP-1Y)

This IC is a high speed, single-channel RS-232 transceiver interface device that operates from a single 3.3V power supply.

The device provides the electrical interface between an asynchronous communication controller and the serial-port connector.

This device operate at data signaling rates up to 460kbit/s.

All RS-232 (Tout and Rin) and CMOS (Tin and Rout) inputs and outputs are protected against electrostatic discharge (up to +/- 15kV ESD protection).

1.9. IC2704 (VHiAK4201EU-1Y)

This IC is audio amplifier for line-out/head-phone.

1.10. IC4405 (VHiMT5112EE-1Q)

This IC is a demodulator for digital terrestrial HDTV(8VSB) and digital CATV(64/256QAM).

It is compliant with ATSC A/53, SCTE DVS-031, and ITU J.83 Annex B standards.

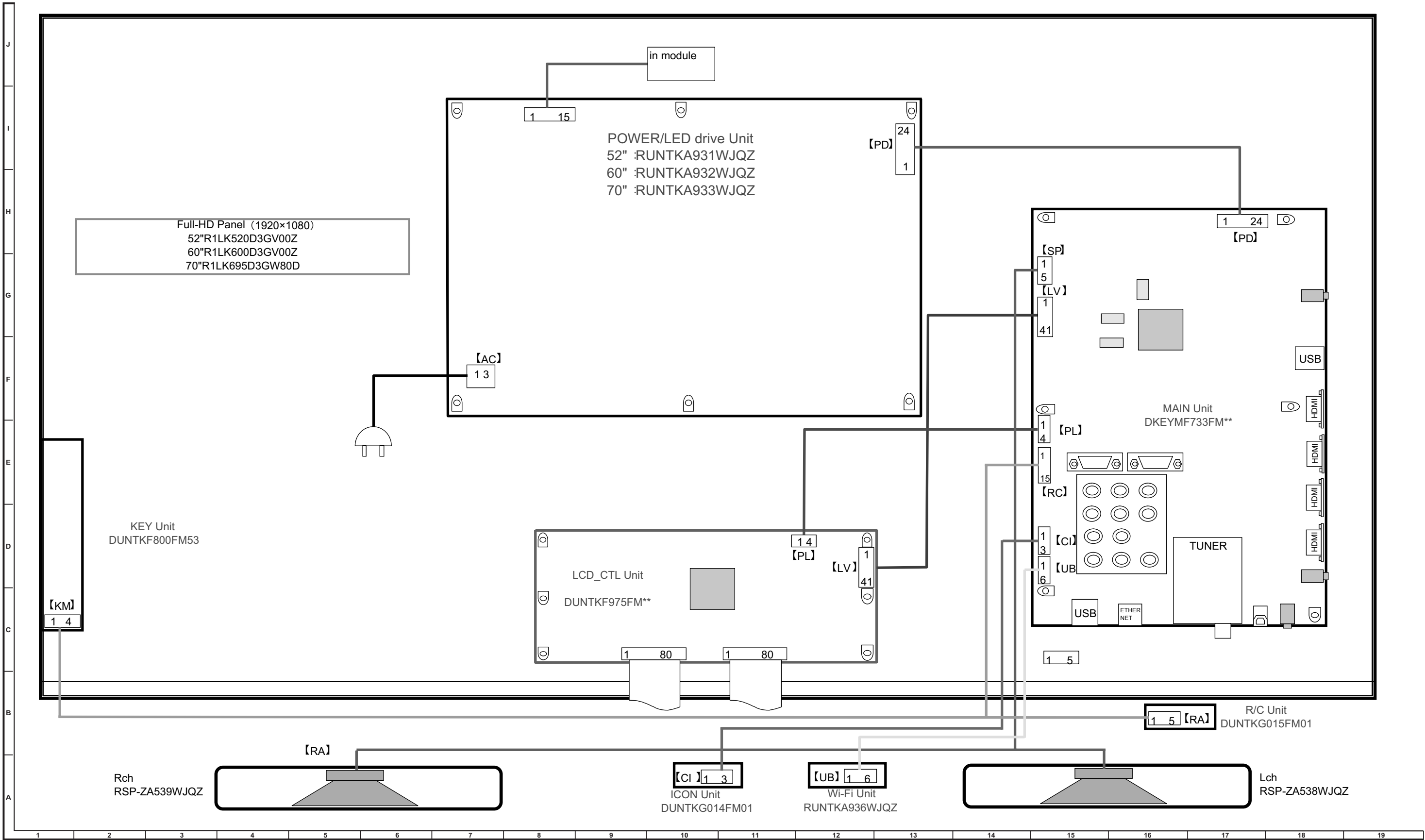
1.11. IC9505 (VHiPD720114-1Q)

This IC is a USB hub controller.

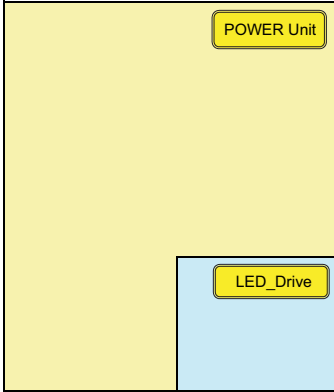
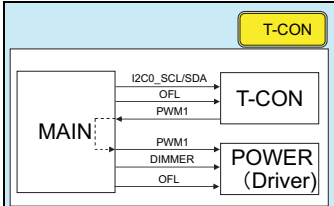
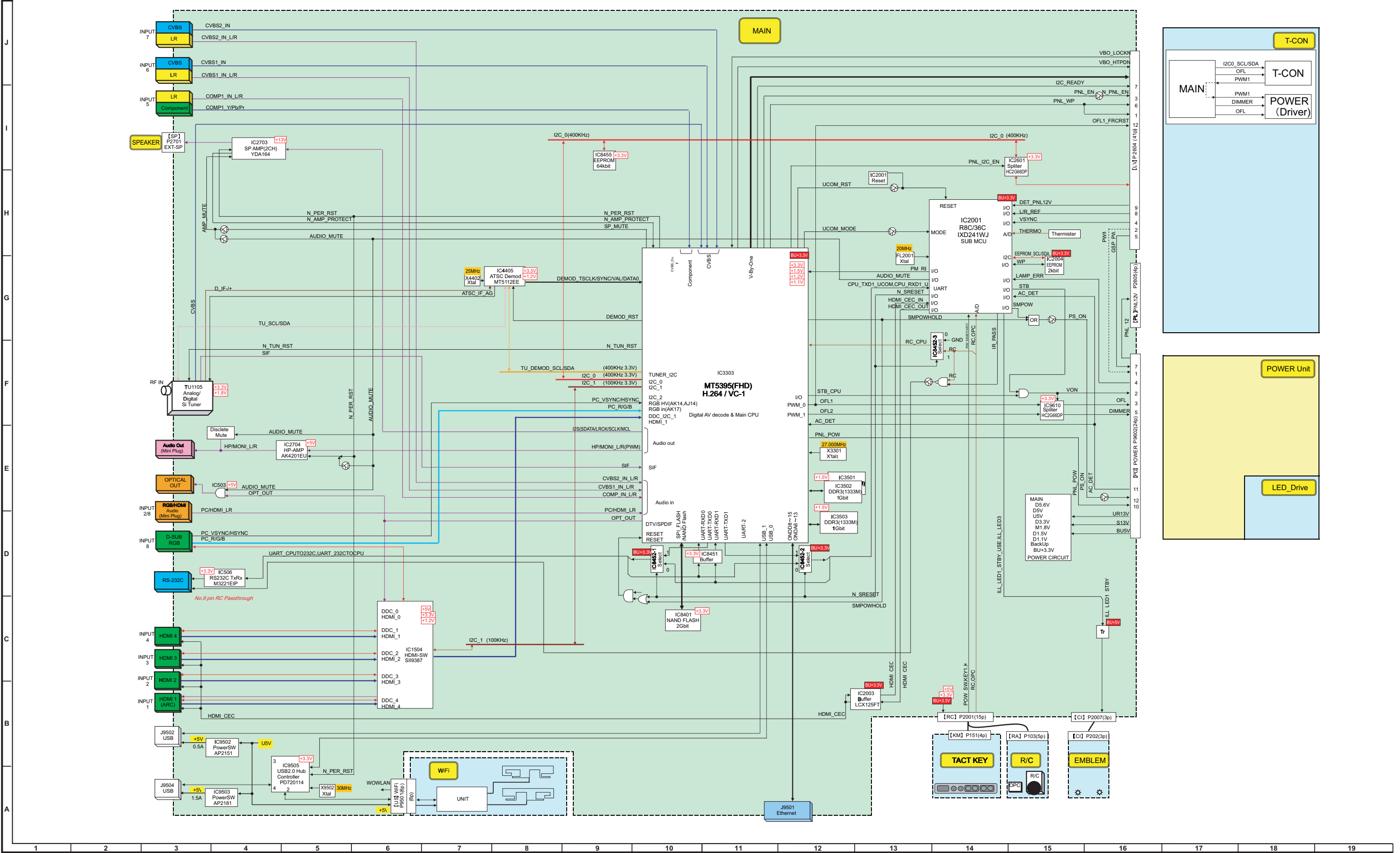
It has one upstream port and four downstream ports,

CHAPTER 8. OVERALL WIRING/SYSTEM BLOCK DIAGRAM

[1] OVERALL WIRING DIAGRAM



LC-52/60/70LE640U,C6400U (1st Edition)
[2] SYSTEM BLOCK DIAGRAM



SHARP PARTS GUIDE



No. S12V452LE640U

LCD COLOR TELEVISION

LC-52LE640U**LC-52C6400U****LC-60LE640U****LC-60C6400U****LC-70LE640U****MODELS LC-70C6400U**

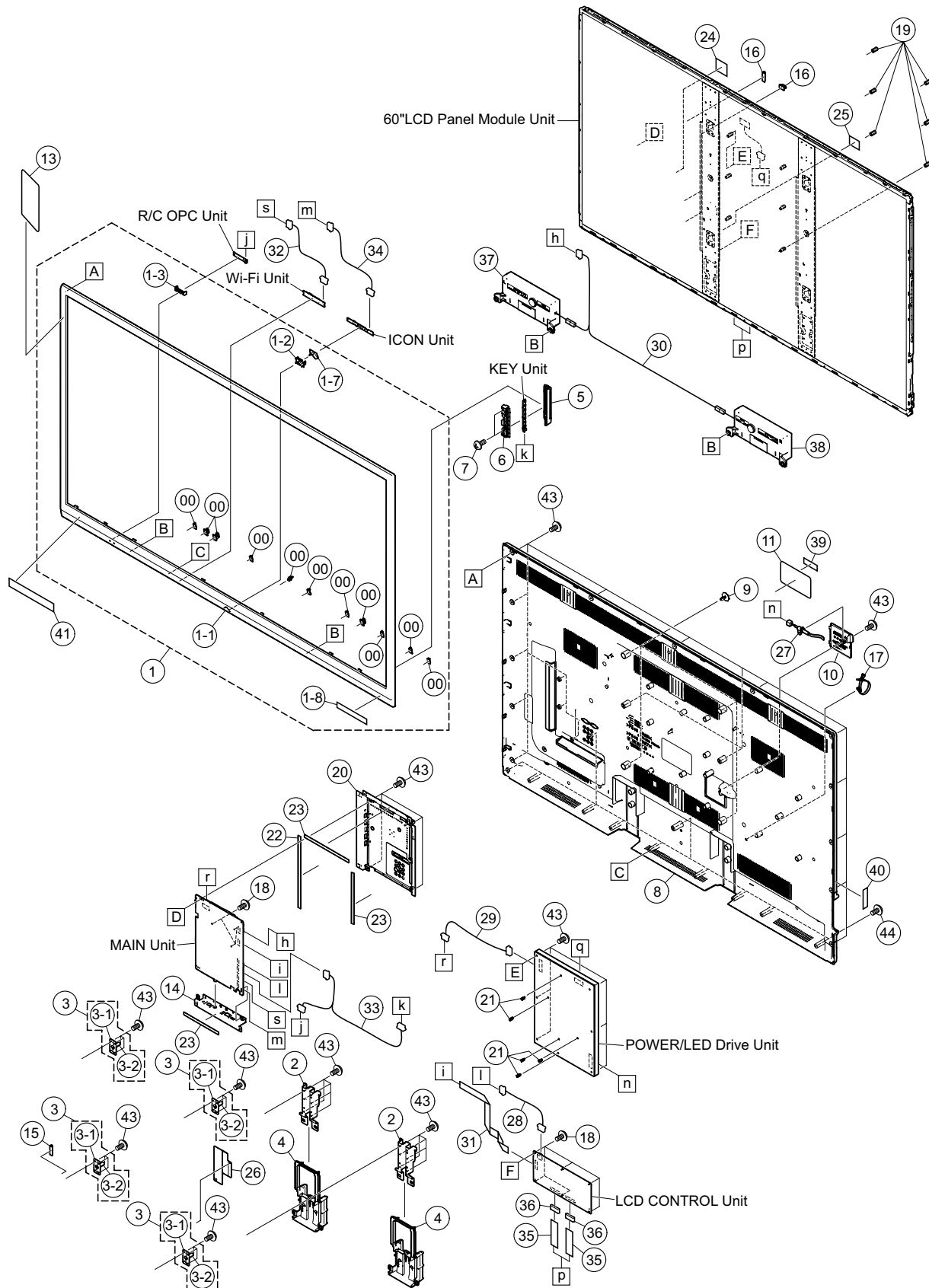
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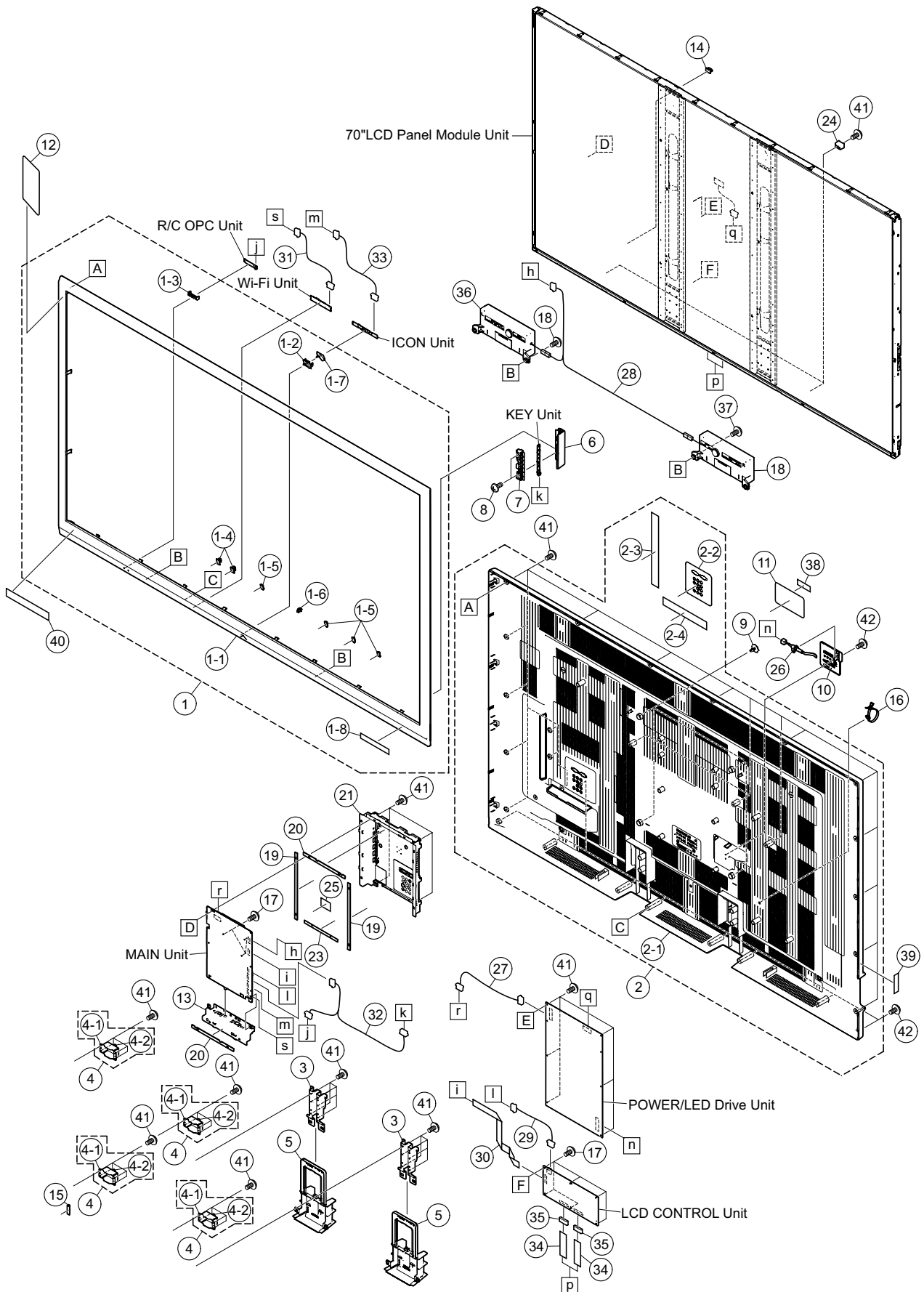
Parts marked with "△" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART DELIVERY	DESCRIPTION
[1] PRINTED WIRING BOARD ASSEMBLIES					
N	DKEYMF733FM84			X	MAIN Unit (LC-52LE640U/C6400U)
N	DKEYMF733FM83			X	MAIN Unit (LC-60LE640U/C6400U)
N	DKEYMF733FM82			X	MAIN Unit (LC-70LE640U/C6400U)
N	DUNTKF800FM53			X	KEY Unit
N	DUNTKF975FM03			X	LCD CONTROL Unit (LC-52LE640U/C6400U)
N	DUNTKF975FM02			X	LCD CONTROL Unit (LC-60LE640U/C6400U)
N	DUNTKF975FM01		N	X	LCD CONTROL Unit (LC-70LE640U/C6400U)
N	DUNTKG014FM01			X	ICON Unit
N	DUNTKG015FM01		N	X	R/C OPC Unit
N	RUNTKA936WJQZ		N	X	Wi-Fi Unit
N	RUNTKA931WJQZ		N	X	PWER/DRIVE Unit (LC-52LE640U/C6400U)
N	RUNTKA932WJQZ		N	X	PWER/DRIVE Unit (LC-60LE640U/C6400U)
N	RUNTKA933WJQZ		N	X	PWER/DRIVE Unit (LC-70LE640U/C6400U)
[2] LCD PANEL MODULE UNIT					
N	R1LK520D3GV00Z		N	X	52" LCD Panel Module Unit (LC-52LE640U/C6400U) (LK520D3GV00Z)
N	R1LK600D3GV00Z		N	X	60" LCD Panel Module Unit (LC-60LE640U/C6400U) (LK600D3GV00Z)
N	R1LK695D3GW80Z		N	X	70" LCD Panel Module Unit (LC-70LE640U/C6400U) (LK695D3GW80Z)
[3] CABINET PARTS (LC-52LE640U/C6400U)					
1	CCABAC861WJ31		N	X	Front Cabinet Ass'y
1-1	Not Available	-		-	Front Cabinet
1-2	GCOVAE327WJ3A			X	ICON Cover
1-3	HDECQB692WJ3A			X	R/C,LED Decoration
1-4	LHLDWA124WJKZ	AC		J	Wire Holder
1-5	LHLDWA175WJUJ	AC		J	Wire Holder, x9
1-6	PSHEPB181WJKZ			X	Sheet
1-7	TLABZD048WJZZ			X	License Label
2	CANGKD485WJ31			X	Support Ass'y, x2
2-1	LANGKD485WJ3W		N	X	Support Angle
2-2	PSPAHC502WJZZ			X	Mirror Mat
3	CANGKD506WJ31		N	X	VESA Angle, x4
3-1	LANGKD506WJ3W		N	X	VESA Angle
3-2	NSFTZA460WJFN	BC		J	VESA Shaft
3	GCOVAE320WJ3A			X	Bottom COVER, x2
4	GCOVAE060WJ3A			X	KEY Bottom Cover
5	JBTN-A912WJ3A			X	KEY Bottom
6	XEBS830P08000	AA		J	screw, x2
7	GCABBC063WJ3A		N	X	Rear Cabinet
8	GCOVAE576WJKZ	AC		J	VESA Cover, x4
9	GCOVAE163WJ3A			X	AC Cord
10	HINDPE544WJSA		N	X	Model Label (for LC-52LE640U)
11	HINDPE550WJSA		N	X	Model Label (for LC-52C6400U)
12	HINDPE547WJZZ		N	X	Energy guide Lable
13	LANGKD146WJFW			X	Term Angle Bottom
14	LANGKD488WJ3W		N	X	Center Angle, x2
15	LHLDWA138WJKZ	AC		J	Wire Holder, x3
16	LHLDWA318WJKZ			X	Holder
17	LX-BZA207WJF7	AA		J	Screw, x9
18	LX-EZA069WJF7	AB		J	Screw, x2
19	NSFTZA459WJF7	AC		J	Tray Shaft, x6
20	PSLDMB748WJFW			X	MAIN PWB SHIELD
21	PSPANAO44WJKZ	AB		J	Spacer, x5 (POWER)
22	PSPAZC690WJZZ			X	Spacer
23	PSPAZC691WJZZ	AE		J	Spacer, x3
24	PSPAZC805WJKZ		N	X	Spacer
25	PSPAZC840WJZZ		N	X	Spacer, x2
26	QACDA084WJPZ			X	AC Cord
27	QCNW-L590WJQZ	AM		J	Connecting Cord (PD)
28	QCNW-L596WJQZ	AE		J	Connecting Cord (PL)
29	QCNW-M509WJQZ		N	X	Connecting Cord (LV)
30	QCNW-M510WJQZ		N	X	Connecting Cord (UB)
31	QCNW-M511WJQZ		N	X	Connecting Cord (SP)
32	QCNW-M512WJQZ		N	X	Connecting Cord (RC)
33	QCNW-M513WJQZ		N	X	Connecting Cord (CI)
34	QCWNW2733TPZZ	AF		J	Connecting Cord (FFC), x2
35	RCORFA061WJZZ	AG		J	Ferrite Core, x2
36	RSP-ZA538WJQZ	AU		J	Speaker (L)
37	RSP-ZA539WJQZ	AU		J	Speaker (R)
38	TLABNB037WJZZ			X	Serial Label (Back)
39	TLABNE225WJZZ		N	X	Serial Label (Side)
40	TLABZD102WJZZ			X	POP Lable
41	XBPS830P06WS0	AA		J	Screw, x39
42	XBPS830P06WS0	AA		J	Screw, x16
43	XEBS830P12000	AA		J	Screw, x8

[4] CABINET PARTS (LC-60LE640U/C6400U)



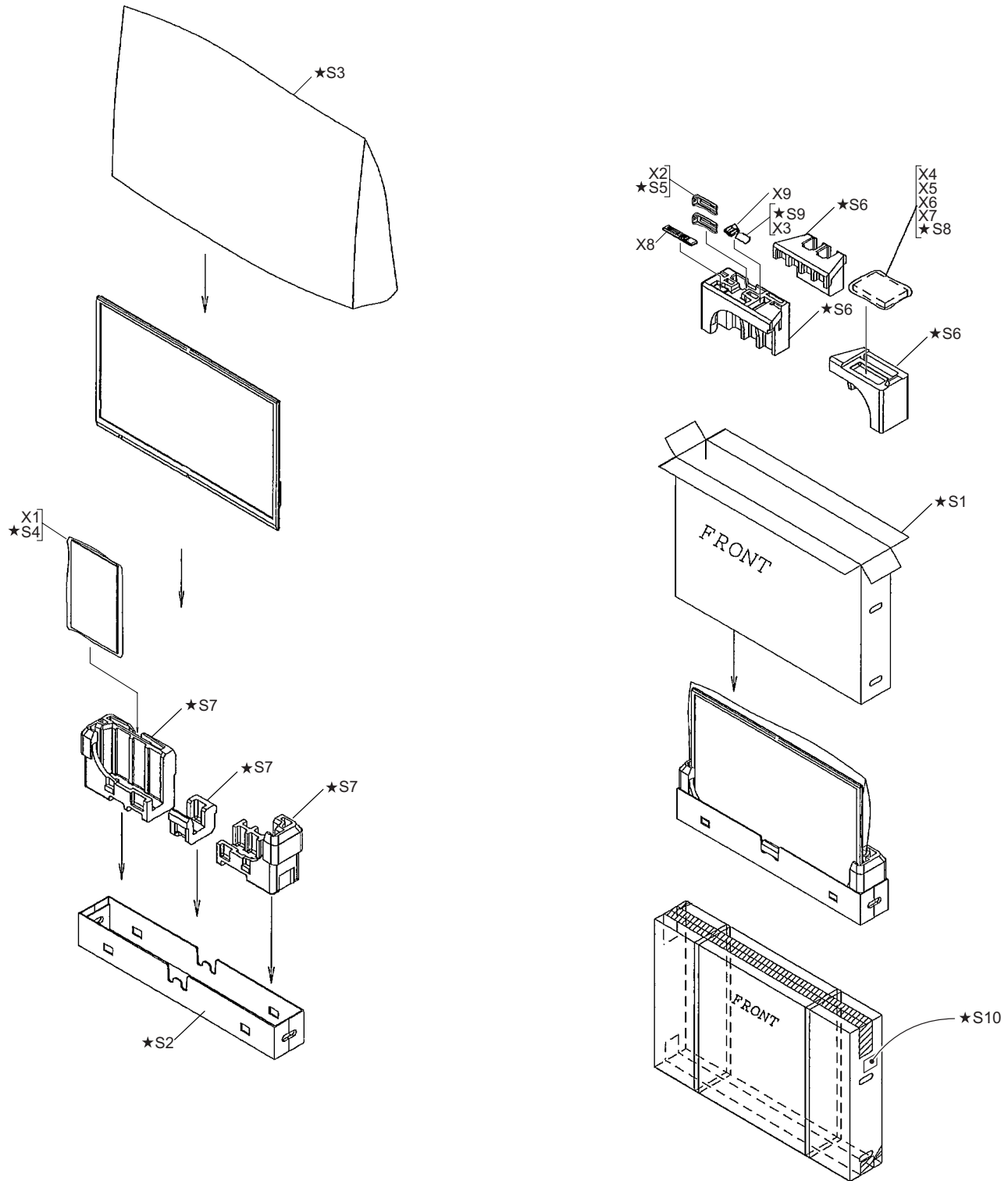
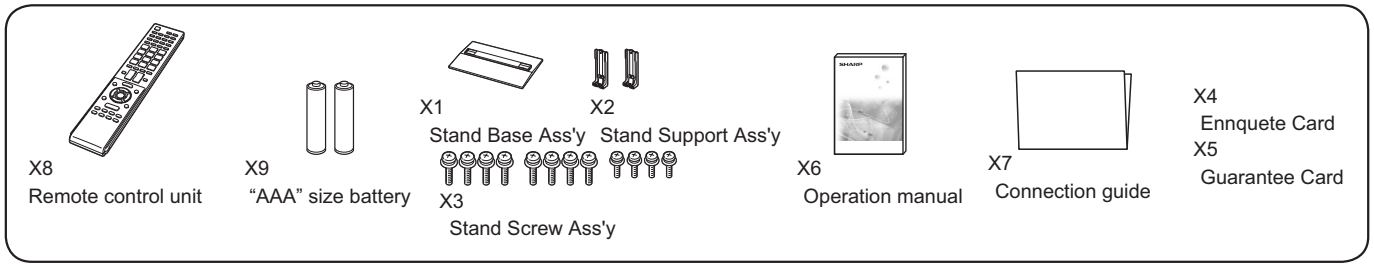
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART DELIVERY	DESCRIPTION
[4] CABINET PARTS (LC-60LE640U/C6400U)					
1	CCABAC860WJ31		N	X	Front Cabinet Ass'y
1-1	Not Available	-		-	Front Cabinet
1-2	GCOVAE327WJ3A			X	ICON Cover
1-3	HDECQB692WJ3A			X	R/C LED Decoration
1-4	LHLDWA133WJKZ	AC		J	Wire Holder
1-5	LHLDWA175WJUJ	AC		J	Wire Holder, x4
1-6	LHLDWA289WJKZ	AC		J	Wire Holder
1-7	PSHEPB181WJKZ			X	License Label
1-8	TLABZD048WJZZ			X	Wi-Fi Label
2	CANGKD485WJ31			X	Support Ass'y, x2
2-1	LANGKD485WJ3W		N	X	Support Angle
2-2	PSPAHC502WJZZ			X	Mirror Mat
3	CANGKD484WJ31		N	X	VESA Angle, x4
3-1	LANGKD484WJ3W		N	X	VESA Angle
3-2	NSFTZA471WJFN			X	VESA Shaft
4	GCOVAE320WJ3A		N	X	Bottom Cover
5	GCOVAE060WJ3A			X	KEY Bottom Cover
6	JBTN-A912WJ3A			X	KEY Bottom
7	XEBS830P08000	AA		J	screw, x2
8	GCABBB958WJ3A			X	Rear Cabinet
9	GCOVAC576WJKZ	AC		J	VESA Cover, x4
10	GCOVAD981WJ3A			X	AC Cord Cover
11	HINDPE543WJSA		N	X	Model Label (for LC-60LE640U)
11	HINDPE549WJSA		N	X	Model Label (for LC-60C6400U)
13	HINDPE546WJZZ		N	X	Energy guide Label
14	LANGKD146WJFW			X	Terminal Angle (Bottom)
15	LHLDWA074WJKZ	AD		J	Wire Holder, x3
16	LHLDWA124WJKZ	AC		J	Wire Holder
17	LHLDWA318WJKZ			X	Holder
18	LX-BZA207WJF7	AA		J	Screw, x9
19	NSFTZA459WJF7	AC		J	Tray Shaft, x6
20	PSLDMB748WJFW			X	MAIN PWB Shield
21	PSPANAA044WJKZ	AB		J	Spacer, x5 (POWER)
22	PSPA2C690WJZZ			X	Spacer
23	PSPA2C691WJZZ	AE		J	Spacer, x3
24	PSPA2C805WJKZ		N	X	Spacer
25	PSPA2C854WJKZ		N	X	Spacer
26	PZETKA595WJKZ			X	AC Code Barrier
27	QACCDAA084WJPZ			X	AC Cord
28	QCNW-L587WJQZ	AE		J	Connecting Cord (PL)
29	QCNW-L608WJQZ	AM		J	Connecting Cord (PD)
30	QCNW-L613WJQZ	AH		J	Connecting Cord (SP)
31	QCNW-M504WJQZ		N	X	Connecting Cord (LV)
32	QCNW-M505WJQZ		N	X	Connecting Cord (UB)
33	QCNW-M507WJQZ		N	X	Connecting Cord (RC)
34	QCNW-M508WJQZ		N	X	Connecting Cord (CI)
35	QCNWN2731TPZZ	AF		J	Connecting Cord (FFC), x2
36	RCORFA061WJZZ	AG		J	Ferrite Core, x2
37	RSP-ZA538WJQZ	AU		J	Speaker (L)
38	RSP-ZA539WJQZ	AU		J	Speaker (R)
39	TLABNB037WJZZ			X	Serial Label (Back)
40	TLABNE225WJZZ		N	X	Serial Label (Side)
41	TLABZD102WJZZ			X	POP Label (for LC-60LE640U)
41	TLABZD132WJZZ			X	POP Label (for LC-60C6400U)
43	XBPS830P06WS0	AA		J	Screw, x60
44	XEBS830P12000	AA		J	Screw, x11

[5] CABINET PARTS (LC-70LE640U/C6400U)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART DELIVERY	DESCRIPTION
[5] CABINET PARTS (LC-70LE640U/C6400U)					
1	CCABAC859WJ31		N	X	Front Cabinet Ass'y
1-1	Not Available	-		-	Front Cabinet
1-2	GCOVAE327WJ3A		N	X	ICON Cover
1-3	HDECQB692WJ3A		N	X	R/C LED Decoration
1-4	LHLDWA124WJKZ	AC		J	Wire Holder, x2
1-5	LHLDWA175WJUJ	AC		J	Wire Holder, x4
1-6	LHLDWA289WJKZ	AC		J	Wire Holder
1-7	PSHEPB181WJKZ		N	X	Sheet
1-8	TLABZD048WJZZ			X	License Label
1-9	ZSFIMB55TA04E		N	X	Protect Sheet A, x2
1-10	ZSFIMB55TA68E		N	X	Protect Sheet B
1-11	ZSFIMBA0TA68E		N	X	Protect Sheet C
2	CCABBB968WJ31			X	Rear Cabinet Ass'y
2-1	Not Available	-		-	Rear Cabinet
2-2	HINDPE034WJSA			X	Terminal Indicator (BACK)
2-3	HINDPE435WJSA		N	X	Terminal Indicator (SIDE)
2-4	HINDPE468WJSA		N	X	Terminal Indicator (BOTTOM)
3	CANGKD485WJ31		N	X	Support Ass'y, x2
3-1	LANGKD485WJ3W		N	X	Support Angle
3-2	PSPAHC502WJZZ			X	Mirror Mat
4	CANGKD483WJ31		N	X	VESA Angle, x4
4-1	LANGKD483WJ3W		N	X	VESA Angle
4-2	NSFTZA460WJFN	BC		J	VESA Shaft
5	GCOVAE335WJ3A		N	X	Bottom Cover, x2
6	GCOVAE162WJ3A			X	KEY Bottom Cover
7	JBTN-A912WJ3A			X	KEY Bottom
8	XEBS830P08000	AA		J	Screw, x2
9	GCOVAC576WJKZ	AC		J	VESA Cover, x4
10	GCOVAE163WJ3A			X	AC Cord Cover
11	HINDPE542WJSA		N	X	Model Label (for LC-70LE640U)
11	HINDPE548WJSA		N	X	Model Label (for LC-70C6400U)
12	HINDPE545WJZZ		N	X	Energy guide Label
13	LANGKD521WJ3W		N	X	Terminal Angle (Bottom)
14	LHLDWA124WJKZ	AC		J	Wire Holder
15	LHLDWA176WJUJ	AC		J	Wire Holder
16	LHLDWA318WJKZ		N	X	Cable Tie
17	LX-BZA207WJF7	AA		J	Screw, x9
18	LX-EZA069WJF7	AB		J	Screw, x2
19	PMLT-A690WJQZ		N	X	Gasket, x2
20	PMLT-A691WJQZ		N	X	Gasket, x2
21	PSLDMB793WJ3W		N	X	MAIN PWB Shield
22	PSPAKA510WJKZ		N	X	Spacer
23	PSPAZC740WJZZ			X	Spacer
24	PSPAZC823WJ3Z		N	X	Spacer, x2
25	PSPAZC835WJKZ		N	X	MAIN CPU Cooler
26	QACDA084WJPZ			X	AC Cord
27	QCNW-M029WJQZ	AR		J	Connecting Cord (PD)
28	QCNW-M030WJQZ	AL		J	Connecting Cord (SP)
29	QCNW-M031WJQZ	AG		J	Connecting Cord (PL)
30	QCNW-M499WJQZ		N	X	Connecting Cord (LV)
31	QCNW-M500WJQZ		N	X	Connecting Cord (UB)
32	QCNW-M502WJQZ		N	X	Connecting Cord (RC)
33	QCNW-M503WJQZ		N	X	Connecting Cord (CI)
34	QCNWN2731TPZZ	AF		J	Connecting Cord (FFC), x2
35	RCORFA061WJZZ	AG		J	Ferrite Core, x2
36	RSP-ZA538WJQZ	AU		J	Speaker (L)
37	RSP-ZA539WJQZ	AU		J	Speaker (R)
38	TLABNB037WJZZ			X	Serial Label (Back)
39	TLABNE225WJZZ		N	X	Serial Label (Side)
40	TLABZD102WJZZ		N	X	POP Label (for LC-70LE640U)
40	TLABZD132WJZZ		N	X	POP Label (for LC-70C6400U)
41	XBPS830P06WS0	AA		J	Screw, x62
42	XEBS830P12000	AA		J	Screw, x10

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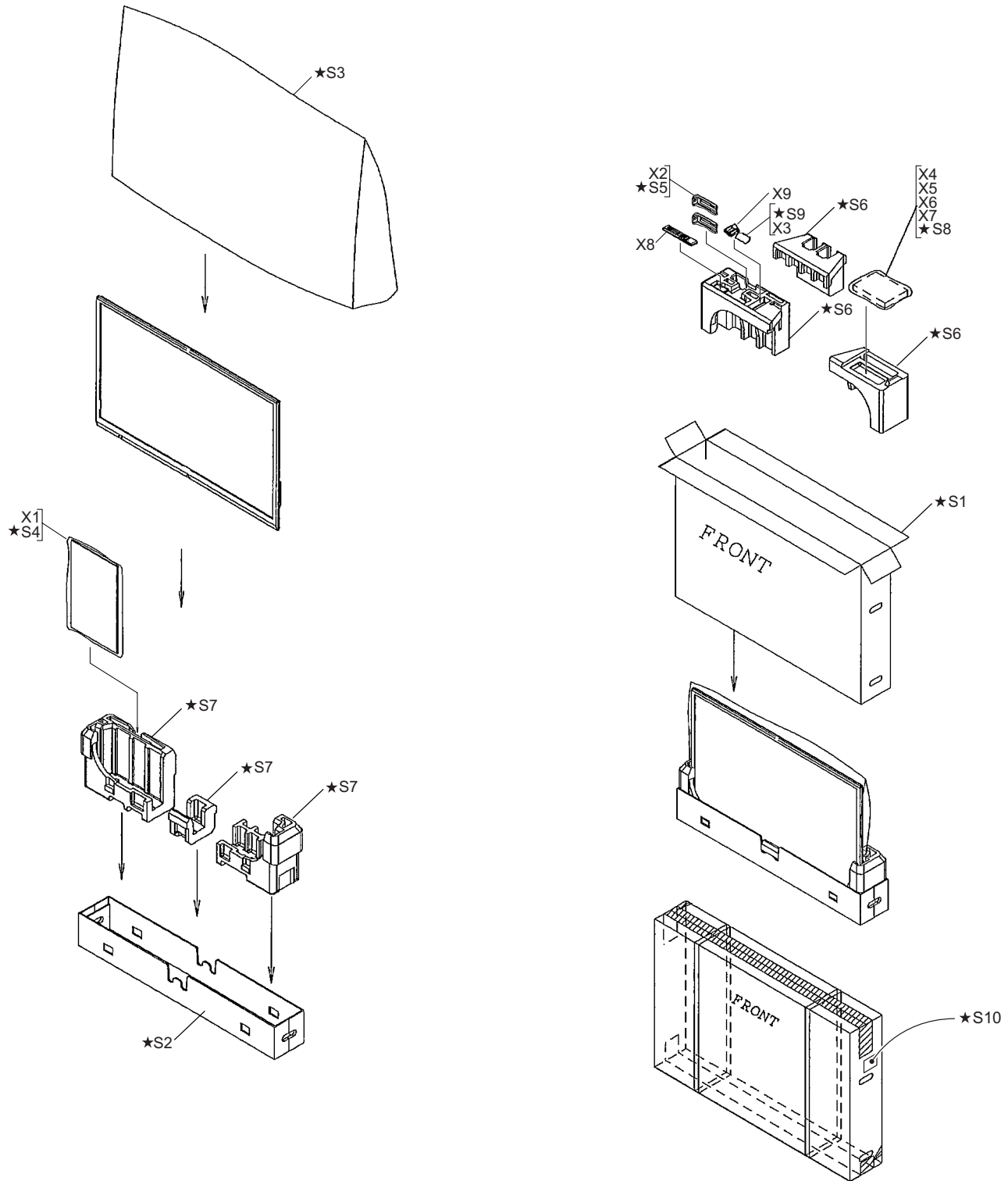
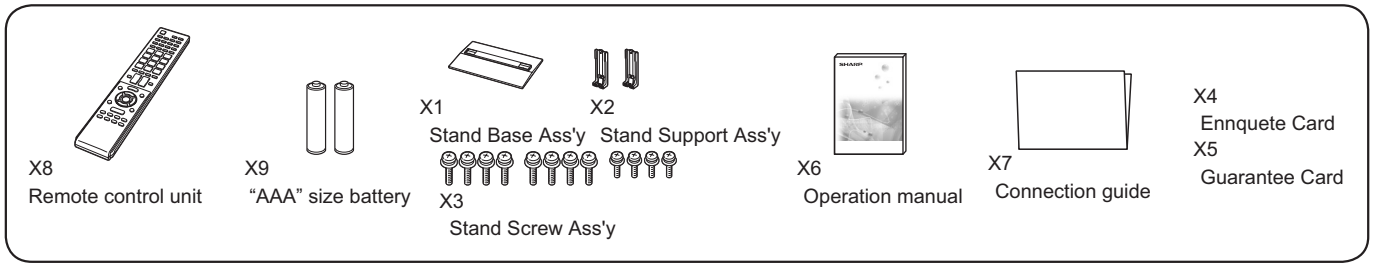
[6] SUPPLIED ACCESSORIES/PACKING PARTS (LC-52LE640U/C6400U)



★ Not Replacement item

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART DELIVERY	DESCRIPTION
[6] SUPPLIED ACCESSORIES/PACKING PARTS (LC-52LE640U/C6400U)					
X1	CDAi-A778WJ31			X	Stand Base Ass'y
X2	CANGKD276WJ01			X	Support Ass'y, x2
X3	CSAKKA011WJ01			X	Stand Screw Ass'y
X4	TCADAE290WJZZ		N	X	Ennquete Card
X5	TGAN-B610WJZZ			X	Guarantee Card
X6	TINS-F419WJZZ		N	X	Operation Guide
X7	TMAN-A043WJZZ			X	Conection Guide
X8	RRMCGB004WJSA			X	Remote Control
X9	Not Available	-		-	AAA size battery, x2
S1	SPAKCG633WJZZ	-	N	-	Packing Case (for LC-52LE640U) (NOT REPLACEMENT ITEM)
S1	SPAKCG634WJZZ	-	N	-	Packing Case (for LC-52C6400U) (NOT REPLACEMENT ITEM)
S2	SPAKCG639WJZZ	-	N	-	Packing Case (Bottom) (NOT REPLACEMENT ITEM)
S3	SPAKPA992WJZZ	-		-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S4	SPAKPB722WJZZ	-	N	-	Packing Add. (Base) (NOT REPLACEMENT ITEM)
S5	SPAKPB723WJZZ	-	N	-	Packing Add. (Support) (NOT REPLACEMENT ITEM)
S6	SPAKXD564WJZZ	-	N	-	Packing Add. (Top) (NOT REPLACEMENT ITEM)
S7	SPAKXD565WJZZ	-	N	-	Packing Add. (Bottom) (NOT REPLACEMENT ITEM)
S8	SSAKA0101GJZZ	-		-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S9	SSAKKA011WJZZ	-	N	-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S10	TLABKA009WJZZ	-		-	Case No Label

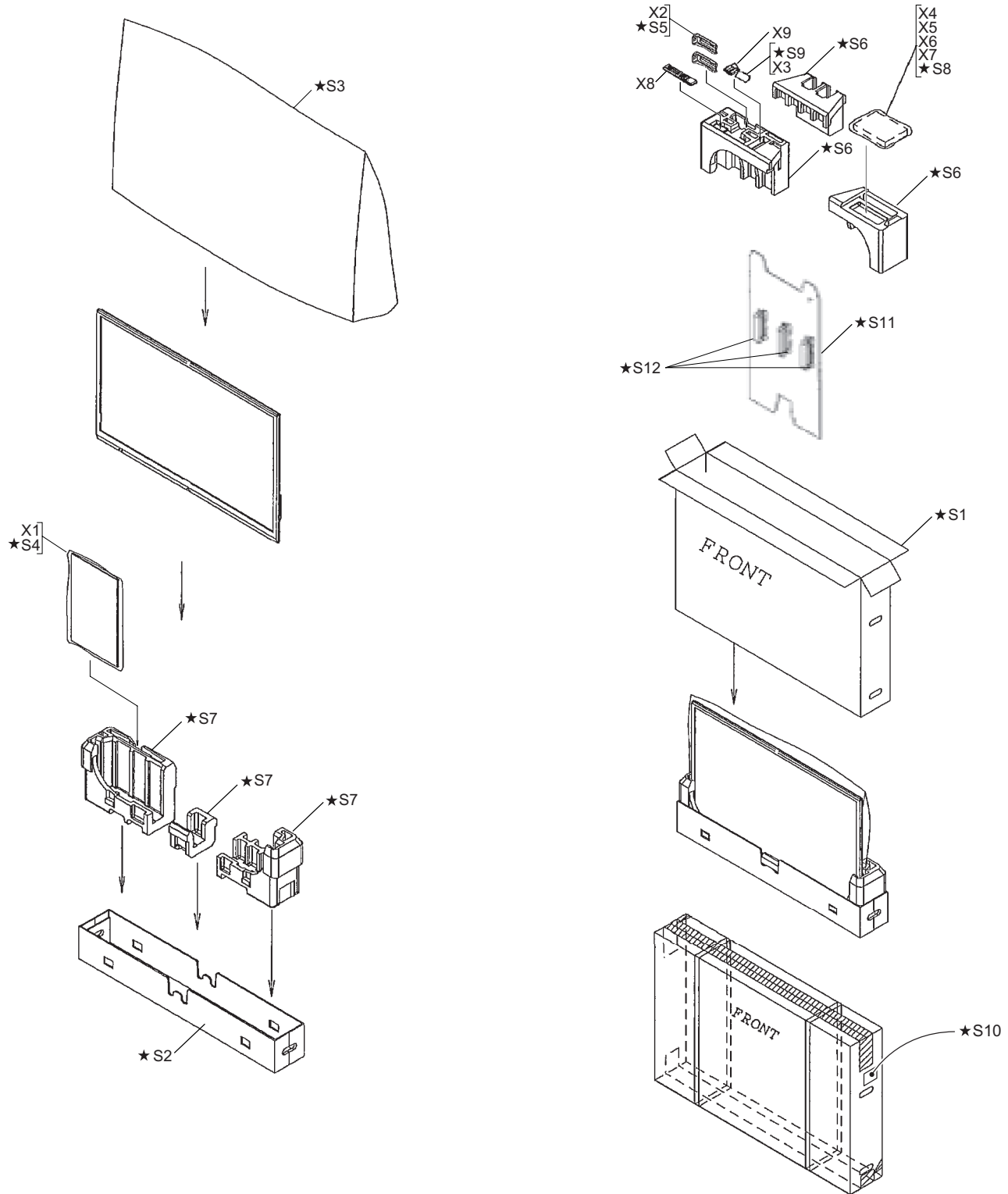
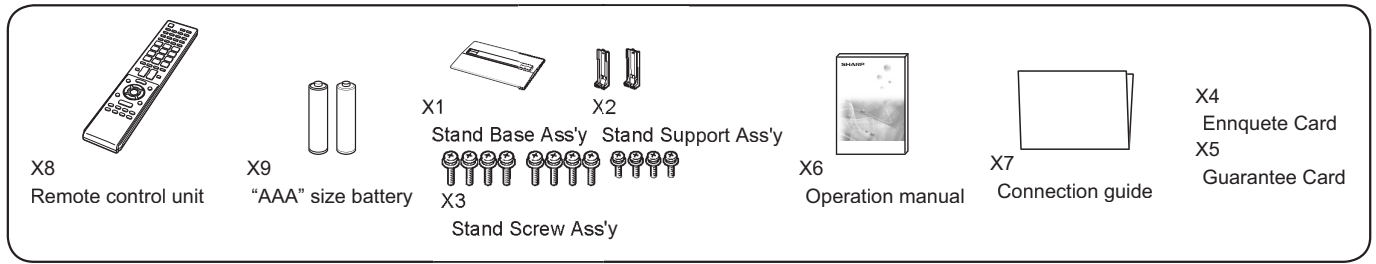
[7] SUPPLIED ACCESSORIES/PACKING PARTS (LC-60LE640U/C6400U)



★ Not Replacement item

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART DELIVERY	DESCRIPTION
[7] SUPPLIED ACCESSORIES/PACKING PARTS (LC-60LE640U/C6400U)					
X1	CDAi-A778WJ31			X	Stand Base Ass'y
X2	CANGKD276WJ01			X	Stand Support Ass'y, x2
X3	CSAKKA011WJ01			X	Stand Screw Ass'y
X4	TCADAE290WJZZ		N	X	Ennquete Card
X5	TGAN-B610WJZZ			X	Guarantee Card
X6	TINS-F419WJZZ		N	X	Operation Guide
X7	TMAN-A043WJZZ			X	Conection Guide
X8	RRMCGB004WJSA			X	Remote Control
X9	Not Available	-		-	AAA size battery, x2
S1	SPAKCG635WJZZ	-	N	-	Packing Case (for LC-60LE640U) (NOT REPLACEMENT ITEM)
S1	SPAKCG636WJZZ	-	N	-	Packing Case (for LC-60C6400U) (NOT REPLACEMENT ITEM)
S2	SPAKCG640WJZZ	-	N	-	Packing Case (Bottom) (NOT REPLACEMENT ITEM)
S3	SPAKPB427WJZZ	-		-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S4	SPAKPB722WJZZ	-	N	-	Packing Add. (Base) (NOT REPLACEMENT ITEM)
S5	SPAKPB723WJZZ	-	N	-	Packing Add. (Support) (NOT REPLACEMENT ITEM)
S6	SPAKXD566WJZZ	-	N	-	Packing Add. (Top) (NOT REPLACEMENT ITEM)
S7	SPAKXD567WJZZ	-	N	-	Packing Add. (Bottom) (NOT REPLACEMENT ITEM)
S8	SSAKA0101GJZZ	-		-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S9	SSAKKA011WJZZ	-	N	-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S10	TLABKA009WJZZ	-		-	Case No Label

[8] SUPPLIED ACCESSORIES/PACKING PARTS (LC-70LE640U/C6400U)



★ Not Replacement item

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART DELIVERY	DESCRIPTION
[8] SUPPLIED ACCESSORIES/PACKING PARTS (LC-70LE640U/C6400U)					
X1	CDAi-A778WJ31			X	Stand Base Ass'y
X2	CANGKD276WJ01			X	Stand Support Ass'y, x2
X3	CSAKKA011WJ01			X	Stand Screw Ass'y
X4	TCADAE290WJZZ		N	X	Ennquete Card
X5	TGAN-B610WJZZ			X	Guarantee Card
X6	TiNS-F419WJZZ		N	X	Operation Guide
X7	TMAN-A043WJZZ			X	Conection Guide
X8	RRMCGB004WJSA		N	X	Remote Control
X9	Not Available	-		-	AAA size battery, x2
S1	SPAKCG637WJZZ	-	N	-	Packing Case (for LC-70LE640U) (NOT REPLACEMENT ITEM)
S1	SPAKCG638WJZZ	-	N	-	Packing Case (for LC-70C6400U) (NOT REPLACEMENT ITEM)
S2	SPAKCG641WJZZ	-	N	-	Packing Case (Bottom) (NOT REPLACEMENT ITEM)
S3	SPAKPB722WJZZ	-	N	-	Packing Add. (Base) (NOT REPLACEMENT ITEM)
S4	SPAKPB723WJZZ	-	N	-	Packing Add. (Support) (NOT REPLACEMENT ITEM)
S5	SPAKPB733WJZZ	-		-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S6	SPAKXD568WJZZ	-	N	-	Packing Add. (Top) (NOT REPLACEMENT ITEM)
S7	SPAKXD569WJZZ	-	N	-	Packing Form (Bottom) (NOT REPLACEMENT ITEM)
S8	SSAKA0101GJZZ	-		-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S9	SSAKKA011WJZZ	-	N	-	Polyethylene Bag (NOT REPLACEMENT ITEM)
S10	TLABKA009WJZZ	-		-	Case No Label
S11	SPAKFC182WJZZ	-		-	Pad Base
S12	SPAKXD573WJZZ	-		-	Front Pad, x3
[9] SERVICE JIGS (USE FOR SERVICING)					
N	QCNW-C222WJQZ	AW		J	Connecting Cord L=1000mm 80pins, LCD Control to LCD Panel, x2
N	QCNW-M580WJQZ		N	J	Connecting Cord L=1000mm 41pins, Main to LCD Control (LW)
N	QCNW-L795WJQZ	BC		J	Connecting Cord L=1000mm 24pins, Main to Power (PD)
N	QCNW-L807WJQZ	AP		J	Connecting Cord L=1000mm 4pins, Main to LCD Control(PL)

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